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Elmer G. Gleske
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February 21, 2003

Docket Management System,
US Department of Transportation
Room Plaza 401
400 Seventh Street, SW
Washington, DC 20590-0001

Subject: Docket Number FAA-2002-12461, FAR Part 60, Flight Simulation Device Initial and Continuing Qualification and Use, notice of Proposed Rulemaking (NPRM)

Dear Sir/Madam,

Enclosed you will find FlightSafety International's letter dated February 21st, 2003, to Mr. Nicholas Sabatini, AVR-1, and 59 pages of comments on the above referenced NPRM.

Thank you for the opportunity to participate in this rulemaking.

Sincerely,

Al Gleske

Elmer G. Gleske

Attachments: Comments to Docket Number FAA-2002-12461, FAR Part 60, Flight Simulation Device Initial and Continuing Qualification and Use, notice of Proposed Rulemaking (NPRM).

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February 21, 2003

Mr. Nicholas Sabatini
Associate Administrator for Regulation and Certification, AVR-1
FEDERAL AVIATION ADMINISTRATION
800 Independence Ave., SW
Washington, DC 20591

Subject: Docket Number FAA-2002-12461, FAR Part 60, Flight Simulation Device Initial and Continuing Qualification and Use, notice of Proposed Rulemaking (NPRM)

Dear Nick,

After considerable review of NPRM Part 60, FlightSafety International believes that the proposed rule should be removed from the Docket and that an aviation rule making committee be formed immediately to develop a new proposed rule. As detailed in the attached comments, the proposed rule generated a number of complex questions with respect to Appendix H of Part 121, and there are many noted conflicts between the proposed rule and with Parts 61, 91, and 142.

The new concept of a sponsor and the requirement for a minimum of 600 hours of usage annually poses a problem for training providers who dry lease simulators to a number of operators. For example, if only one air carrier/certificate holder is to be approved as a sponsor, and usage falls short of the 600-hour requirement, training would be interrupted for other operators using that simulator. If pilots are not able to be trained in a timely manner, the aviation, travel and overall business environments are likely to suffer. We believe the sponsorship concept should be abandoned and the qualification, use, and maintenance responsibilities should remain with the owner/operator or certificate holder of the Flight Simulation Device (FSD) and the training program approver should be the TCPM or POI.

The Qualification Performance Standard (QPS) contains regulatory language that appears only in the QPS. The combination of information, data, and regulatory language will create misunderstanding between FAA and the industry. The tabular technical requirement in the QPS are also confusing due to the outdated condition of the tolerances and test descriptions.

The most glaring of the unrealistic requirement in the QPS is the motion system “specifications”. In the past when rules have attempted to define hardware and software simulator system

"specifications", the rules became obsolete before they were published. We recommend the QPS define tolerances, not design specifications.

The latest ICAO document: Manual of Criteria for the Qualification of Flight Simulators – Second Edition, was developed and agreed to by international regulators, including the FAA and industry in March of 2001 during working group meetings held in Amsterdam. The proposed Part 60 states that it is intended to match the ICAO standard. The proposed rule would be much more effective and workable if it did indeed match the latest ICAO document created in Amsterdam. As proposed, it does not.

The proposal to eliminate Level A simulators that are in operation today will create both safety issues and energy, pollution, and noise problems that are contrary to federal regulations. If Level A simulators are eliminated, operators may well revert to the aircraft for training and checking and be forced to accept all the associated safety risks. The suggested alternative – to upgrade Level A simulators – would cost millions of dollars which we believe the industry will not support.

The actual burden the proposed QA Program places on the FAA and industry appears to be underestimated at this time. The voluntary QA Program in place currently offers guidance and tools the industry can use to develop a QA Program acceptable to the NSPM. The voluntary QA Program should be left in place while the NSPM and industry define the QA process in practical goal-oriented terms.

This letter is included with our comments to the Docket.

Thank you for your consideration.

Sincerely,

Al Gleske

Elmer G. Gleske

Attachments: Comments to Docket Number FAA-2002-12461, FAR Part 60, Flight Simulation Device Initial and Continuing Qualification and Use, notice of Proposed Rulemaking (NPRM).

FlightSafety
International

Preamble

Subject: Review of and comments to Docket No. FAA-2002-12461 (NPRM 60)

Re: Preamble page 60284, **"Summary",** states: **"Currently, sponsors of flight simulation devices may elect to have, but are not required to have, a Quality Assurance program."**

> Comment: Currently, there are no "sponsors" of simulation. The FAA has never defined the term; there has never been a requirement to have or to be a sponsor. The term, concept, and obligation is proposed in this Notice of Proposed Rulemaking for the first time. The implication that sponsors exist now and have been required tends to minimize the operational and economic impact of the current proposal.
>
> Recommendation: That the FAA acknowledge that current rules do not require sponsors.

Re: Preamble page 60285, **"Background",** states: **"…the regulatory requirements for the technical criteria for a majority of the simulators…has remained in the part 121 operating rule."** And**, "the FAA is proposing to remove the technical requirements for flight simulation devices from part 121 and place them in the new part 60…."**

> Comment: In fact, this is not accurate. The technical requirements have never been regulatory, appearing in several Advisory Circulars (AC) instead, which the FAA now proposes as Appendices A through D to Part 60. The few requirements addressing the nature of simulation devices that did appear in Part 121, the FAA proposes to leave in Part 121; it has not proposed to delete or otherwise amend § 121.407 (the pertinent section) nor Appendix H to Part 121, not even in the section of the preamble titled "Conforming changes…."
>
> Second, FSI, with about 195 simulators, most of which are used for Part 135 and Part 91 training, checking, and testing, represents a significant owner and operator of the simulators in the U.S. These have a definite requirement in Part 142 to meet FAA technical "requirements." The salient point is that technical "requirements" have been in advisory material only.
>
> Recommendation: That the background portion of this NPRM clearly acknowledge that *de facto* requirements have always been advisory and never regulatory, and that the change of this feature is a major purpose of this rulemaking undertaking.

Re: Preamble page 60285, **"General Discussion of Proposed Part 60",** first paragraph, states: **"In a separate rulemaking project that will follow this proposal, other portions of appendix H would be moved to a new subpart of part 121, and appendix H would be deleted."**

> Comment: The FAA makes no promise as to when these actions would occur. There appears to be no cogent reason to not remove Appendix H as a part of this rulemaking, even if such action would require a supplemental NPRM. In discussion in the preamble,

the FAA addresses obsolete terms, (for example, visual simulator), and obsolete concepts (for example Simulator Minimum Equipment List), but would leave them extant in Appendix H. That appendix does not require Part 121 operators to be or to obtain a sponsor; it does not require a Statement of Compliance, and several other features of this proposal. As such, it creates an un-level field for persons having simulators and providing simulation training. Not deleting Appendix H fails to comply with the "Conforming changes to (*list of parts of 14 CFR that are changed to conform with present proposals)*". That section states: "Because proposed Part 60 contains the FAA requirements for evaluation and qualification of flight simulation devices, specific qualification requirements are no longer needed in other regulations that address the use of simulation in flight crew member training." FlightSafety believes that statement is true. The FAA stated that those rules were in Appendix H of Part 121 ("Background", paragraphs 6 and 7, quoted earlier). Despite its own contradiction and the mandatory address of other proposals to make conforming changes, the FAA neglects to propose the amendment.

As to separate a rulemaking project that will follow this proposal, FSI notes that several recent NPRMs have taken years to reach the proposal stage, and many others have been in NPRM development for years. In fact, Part 121 still has Appendix C, "C-46 Non-transport Category Airplanes!" FSI remains concerned that timely action will not be taken to delete Appendix H.

Recommendation: That the FAA make the necessary and proper conforming changes now and amend § 121.407 and delete Appendix H

Re: Preamble page 60285, **"General Discussion of Proposed Part 60", paragraph 4,** states: **"The current and proposed …uses of simulation would be in…parts 61, 63, 121, 135, 141, and 142…."**

Comment: Operators under Part 125, and potentially Part 137, may use simulation, too, according to the present 14 CFR. Those parts are omitted in most places in this preamble and proposed rule: Part 137 in every case.

Recommendation: That the FAA include Parts 125 and 137 in every listing of the affected parts, as among those that may use FSDs.

Re: Preamble page 60285, **"General Discussion of Proposed Part 60"**, the last paragraph, states: **"The process described below for obtaining and maintaining FSD qualification is similar to current practice."**

Comment: The process outlined in the proposed Part 60 is not at all similar to current practice in one of the major features of the proposed rule. That is, the current practice, (and practice for the past many years), has been for the FAA to evaluate, qualify, and then approve for use FSDs for a certificate holder having an approved training program. Now the FAA would add the major step of approving a person, not necessarily the

developer, owner, or custodian of an FSD as a sponsor. This is a major departure from current practice.

Part 142 specifies, in § 142.1, "that certificate holders under that part may conduct training under Parts 61, 63, 121, 125, 135, and 137". In § 142.5, it specifies that persons who meet the requirements of Part 142 "…will be issued (obligation on the FAA Administrator) a training center certificate and training specifications…." For the FAA to propose now that another step is required, for which the Part 142 certificate holder may not even be eligible, is improper. That additional step is gaining approval as a sponsor. Part 142 imposed the mutual obligations, including the obligations of the Administrator. This proposed addition, and change to those mutual obligations, would seemingly require at least that the NPRM include notice that such a change is proposed to Part 142. Section 142.59(f) is a contradiction to the proposal, yet is not addressed nor proposed for revision in this rule.

Training Centers certificated under Part 142 were given regulatory assurance that if they did certain things, the Administrator was obligated to issue a certificate under that part, and were assured that they would not be required to have any specific relationship with an air carrier. Part 142's "no specific relationship" would preclude –

> A requirement for an air carrier's FAA representative (a POI) to be the Training Program Approval Authority (TPAA) instead of the Training Centers own FAA representative (TCPM);
>
> Having an air carrier client as the "sponsor" in order to continue to carry on business in its own FSDs; and
>
> Any requirement for a minimum annual usage requirement—all proposed in this rule.

These proposals would require a very specific relationship to an air carrier client. There is no mention of proposed concurrent changes in the section of the preamble entitled "Conforming Changes to Parts…."

Recommendation: That the FAA abides by the obligations of Part 142, and in fact embrace in this proposed rule current practices, which the preamble stated earlier is the FAA intent.

Additionally, the proposal would establish a 600-hour minimum usage per the proposed sponsor for any FSD. That is major departure from current practice, or at least practice permitted by current rules. Failing to meet the 600-hour FSD usage would force a user to revert to pilot training and certification in the aircraft resulting in reduced safety, noise pollution, fuel consumption and air traffic congestion.

Recommendation: That the FAA recognizes and states the magnitude of departure from current practice, and delete any claims that the current proposal for maintaining FSD qualification mirrors current practice.

Re: Preamble page 60285, **"Obtaining and Maintaining FSD Qualification under the Proposed Rule",** first paragraph, states: **"Other certificate holders may seek approval to use the same FSD…."**

Comment: This construction seems to eliminate non-certificate holders, primarily corporate or private operators under Part 91, from being able to do the same thing. This could impose a hardship and diminished safety for those operators. This could be especially true for low-density aircraft not typically operated by these operators, such as the BAC-111, F-100, SF-340, and potentially several other types normally considered "airline" type airplanes. Did the FAA intend to withdraw the current advantages of simulation from such operators? Additionally, if the rules for "Fractional Operators" go into Part 91, as now appears likely, an even larger segment of the aviation community would be precluded from being sponsors by the proposed wording.

Recommend a declarative statement as to the intent of this language, and the intent toward such operators.

Further, Recommendation: That the FAA delete the "sponsorship" concept so that there is no question that such operators could seek their training, testing, and checking from Part 142 Training Centers, as those centers were designed to do.

Re: Preamble page 60285, **"Obtaining and Maintaining FSD Qualification under the Proposed Rule",** end of first paragraph, states: **"…time spent in FSDs may not be "credited" toward "operating experience" requirements (e.g., § 121.434.)"**

Comment: "Operating experience" is not defined. It is typically used in the phrase "operating experience, operating cycles, and line operating flight time", as it is in § 121.434. The latter two terms are similarly not defined. It is not clear what the proposal means for an FSD not to be credited to do. Based upon precedence and the allowance of existing rules; there are not many such sections specifying requirements which an airman cannot satisfy in an FSD of some fidelity.

Under the same heading in the second paragraph a sentence reads in part; "…the FSD adequately represents the environment in which the aircraft actually operates."

The meaning of the phrase "environment in which the aircraft actually operates" is not clear and should be defined.

Recommendation: That the FAA specify the sections of 14 CFR that a FSD may not be used to satisfy, or leave the current wording allowing 'training, testing, and checking", and delete the confusing phrase "environment in which the aircraft actually operates," and the terms "flight experience" and "credit".

Re: Preamble page 60286, **"Obtaining and Maintaining FSD Qualification under the Proposed Rule",** paragraph number 5, states: **"A qualified FSD still cannot be used for training until it is approved for use in a certificate holder's training program in accordance with the training program regulations in Part 121, 135, 141, and 142."**

Comment: Training, testing and checking requirements of Part 125, under existing rules, may be accomplished in FSDs, and the FAA has not proposed to eliminate that privilege. It should be made clear that the omission of Part 125 from this paragraph was an oversight. Additionally, § 142.1 allows the training and testing requirements of Part 137 to be completed in approved training programs in FSDs. This discussion seems to eliminate that.

Recommendation: That the FAA clearly state the permitted uses of FSDs.

Second, a qualified FSD may be used to satisfy numerous training requirements of Part 61. In fact, Part 61 will allow some use of some devices outside the structure of a Part 142 training program, and increases the amount of time that may be creditable when used in a Part 142 training center. Contrast § 61.129(a)(3)(i) and § 61.129(i) as an example of each.

Recommendation: That the FAA leave standing the privileges of an airman, individually, and a Part 142 certificate holder with regard to gaining not only qualification but approval to use FSDs.

Third, under the same heading in the sixth paragraph a sentence reads; "The sponsor must complete performance demonstrations and objective, quarterly checks of the simulator's performance and handling qualities." The term "performance demonstrations" is not defined.

Recommendation: That the FAA clearly define the "quarterly checks" that are to be performed out of the items listed in the applicable QPS and by whom.

Re: Preamble page 60286**, "Obtaining and Maintaining FSD Qualification under the Proposed Rule",** paragraph 4, summarizes proposed actions to obtain initial qualification; it states: **"Once the initial evaluation is successfully completed…."**

Comment: The initial evaluation is supposedly for a new simulator, or at least one new to that particular sponsor. However, to maintain qualification, within six years (proposed § 60.17(b)), every existing FSD would have to be subject to the same process, with essentially the same cost. The current wording is misleading.

Recommendation: That the FAA make it clear in this section that this is a proposed requirement for all new simulators, all that become "new" to a particular user, and to all existing simulators, albeit already qualified, to comply with proposed § 60.17(b), and address the cost of the re-qualification of currently-qualified FSDs. The language should

be clear that the already qualified FSDs do not require an initial evaluation for any reason within 6 years.

Re: Preamble page 60286, **"Obtaining and Maintaining FSD Qualification under the Proposed Rule",** paragraph 7, states: **"In addition if the aircraft is modified to change cockpit configuration, if the certificate holder changes relevant flight crew member duties,…the FSD must be modified…."**

Comment: Which certificate holder does the FAA mean? For example, FlightSafety has numerous Part 121 and Part 135 certificate holder clients, which use almost every flight simulator in the numerous training centers. Certainly those clients may make changes to flight crewmember duties, or even surrender a Part 135 certificate to become a Part 91 operator, for example, without FlightSafety having to modify its simulators.

Recommendation: That the FAA clearly state that it does not intend the statement as written.

Re: Page 60286, ***Section 60.1, Applicability***, first paragraph, again uses the term **"operating experience."**

Comment: Same as earlier comment, to Preamble page 60285, "Obtaining and Maintaining FSD Qualification under the Proposed Rule", end of first paragraph, regarding the lack of definition and explicit listing of what is to be prohibited in FSDs. It is not clear what the proposal means for an FSD not to be used to do. Based upon precedence and the allowance of existing rules, there are not many such sections specifying requirements which an airman cannot satisfy in an FSD of some fidelity.

Recommendation: That the FAA list the sections of 14 CFR for which an FSD may not be used.

Re: Page 60286, ***Section 60.2, Applicability of Sponsor Rules to Persons Who Are Not Sponsors and Who Are Engaged in Certain Unauthorized Activities,*** states: **"(This section) would …give the FAA a legal means by which it could charge a nonsponsor, who inappropriately uses or causes the use of an FSD, with violations of the *safety rules*…"** (emphasis added).

The issue of a non-sponsor using or allowing the use of an FSD is clearly an administrative rule, not a safety rule; even the discussion uses the word "inappropriately", not "unsafely." The subsequent discussion within that paragraph seems to inadvertently mention "Company A (a non-sponsor of the FSD)…", when it meant to so label " Company B." If this is not a mistake, the paragraph is not understandable. The FAA goes on to illustrate in the actual proposed section text with examples of permitted practices rather than listing prohibited practices.

Recommendation: That the FAA clearly articulate those practices which are prohibited in the actual text, and accurately discuss applicability of this section to non-sponsors.

Re: Page 60287, ***Section 60.3, Definitions*****,** third paragraph, states: **"For purposes of Part 60, flight experience means only the flight experience used to meet landing recency requirements."**

Comment: Why is this statement necessary? Why does "flight experience", usually labeled "aeronautical experience" in the several Parts of 14 CFR, exclude hours of flight time? Instrument recency of experience? Cat II experience, and a host of others?

Recommendation: That the FAA eliminate this statement or accurately define it in the actual rule.

Re: Page 60288, ***Section 60.5, Quality Assurance Program***, end of second paragraph, states: **"Additionally, the students would more easily retain the knowledge and skills learned through such standardized, uninterrupted training."**

Comment: While this is undoubtedly a true statement, it is not a logical conclusion to this paragraph. A comprehensive Quality Assurance (QA) program will be difficult enough for the FAA to define, and for certificate holders to design and observe without burdening it with concepts of a standardized and continuous training program, which is what the attributes in the cited sentence describe.

Recommendation: That the FAA eliminate unrealistic concepts from the discussion and description of its proposed QA program.

Re: Page 60288, ***Section 60.5, Quality Assurance Program***, second whole paragraph states: **"The purpose of the quality assurance program is to ensure that the sponsor is capable of addressing their own ability to provide FSDs that continually meet the training, testing, checking, and experience requirements of their respective FAA-approved flight training program(s) and the regulatory requirements of part 60."**

Comment: This explanatory sentence points to one of the several problems with the concept of a sponsor, as proposed in this NPRM. FlightSafety, and we suspect others, may have flight simulators which are used by several air carrier certificate holders on a dry lease basis. If only one of those air carrier certificate holders is to be approved as sponsor, and for example not FlightSafety, then this sentence shows that the proposal would not address the needs of the several other operators, each with its own approved training program, but just those of the 'sponsor'.

Under the proposed concept, quality would be assured for only one (sponsor) user, but not for other users. FlightSafety has its flight training program approved under Part 142 for all of its simulators. Most of these are used by numerous, frequently hundreds, of Part 135 certificate holders, each of whom has its own approved training program, but none of whom will be a "sponsor." A purpose of a QA program should be to ensure that a training provider, is capable of providing FSDs that continually meet the training,

testing, checking, and experience requirements of its client's FAA-approved flight training programs.

Recommendation: That the FAA clarify its intention to allow this ongoing and successful operation under Part 142.

Re: Page 60288, ***Section 60.5, Quality Assurance Program***, seventh paragraph, states that proposed paragraph 60.5(d) would provide that **"…the NSPM may require the sponsor to make an appropriate modification to the program…"**

Comment: Is there a time limit to implement changes to the QA program? Is there an impact on the qualification of the training equipment in the interim? The "Preamble" states there is an appeal process but the actual rule text does not seem to contain or mention the process.

Re: Page 60288, same section, paragraph 7, **"When such an appeal is filed…the requirement to make a modification would be delayed *unless* (**emphasis added) **an emergency involving safety of flight requires the immediate modification."**

Comment: What would happen if someone determines that such an emergency exists? Who would make that decision? How long would the immediate action requirement be binding before it would be reviewed, or the appeal to the modification considered by the Administrator? What would be the status of FSDs subject to the QA plan pending such an appeal? Would any sanction about use of FSDs subject to the QA plan be specific to just one FSD, or all FSDs operated by the certificate holder (sponsor)?

Recommendation: That the FAA make more specific statements as to its intent in these regards.

Recommendation: The FAA provide in the proposed rule text a complete description of the actual requirement and the consequences concerning "appropriate modification" and the "appeal process" mentioned on page 60288 of the Preamble

Re: Page 60288, ***Section 60.5, Quality Assurance Program***, last paragraph, states: **"Proposed paragraph (e) would state that each sponsor of an FSD must designate one individual, who is an employee of the sponsor, as the management representative…."**

Comment: We have much concern about delayed or confused communication with the FAA concerning recurrent evaluation schedules, the resolution of FAA observations, requests for extension of deadlines, and other NSPM issues through the use of a "sponsor's management representative" if the FlightSafety management representative is someone other than the Training Center Manager or the Center Manager's designee.

Recommendation: The FAA eliminate the term "sponsor" and allow the Management Representative be an employee of the certificate holding Training Center.

Re: Page 60288, ***Section 60.7, Sponsor Qualification Requirements*** first paragraph, lists persons eligible to be sponsors as certificate holders under Parts 119, 141, and 142.

Comment: Why are certificate holders under Parts 121 and 135 omitted? The logic of that omission is totally unexplained, and appears to make no sense. If the proposal survives to have clients, rather than training providers be the sponsor of dry lease simulators, certificate holders under Parts 121, 125, and 135 are potentially just the persons who would be sponsors. If Part 121 certificate holders will have no obligation to be 'sponsors' of their own FSDs, then this proposal appears to be just a punitive measure against all other persons.

The obligation proposed is vague; in fact, the section is titled "Sponsor Qualification Requirements" but the text addresses eligibility instead. Later in the preamble, and in the proposed rule text, the FAA states that a sponsor would have to be "approved." Should this section then not be entitled "Requirements for Sponsor Approval?" If Part 135 certificate holders who might need or want to dry lease flight simulators are not qualified/eligible, to be a sponsor, or the owner (FlightSafety, in this case) is not qualified/eligible to be the sponsor on behalf of its clients, the proposal is again, in effect, punitive toward entities who are not Part 121 certificate holders with their own flight simulators.

Recommendation: That the FAA address, justify and clarify the conditions and requirements for Part 121 and Part 135 certificate holders to be sponsors.

Re: Page 60288, ***Section 60.7 Sponsor Qualification Requirements,*** first paragraph, last sentence, states: **"The FAA specifically requests comments on the proposal regarding the FSD being used or offered for use in the sponsor's FAA-approved training program for the aircraft being simulated."**

Comment: The last sentence invites discussion on the entire sponsorship issue.

Recommendation: Abandon the "sponsorship" concept and return the qualification, use, and upkeep responsibilities to the owner/operator or certificate holder of the FSD.

Re: Page 60288, ***Section 60.7, Sponsor Qualification Requirements***, asks for comments about the FAA's proposal that FSDs be used in ***the*** (emphasis added) sponsor's training program.

Comment: "The" infers just one. Many training providers have numerous clients, each with approved training programs, both for wet lease and dry lease use of its FSDs. If only one client were the sponsor, and that client should have its training program or certificate withdrawn or suspended, or if it declared bankruptcy, for example, other clients would not be able to use the FSD for at least a fairly lengthy time. This delay is not in the best interest of the FSD owner, who deserves a fair return on investment, or of pilots needing training. FSD manufacturers meet all technical requirements and build FSDs with the good faith that they may be used for the purposes most recently articulated in the preamble to Part 142. Neither would the delay be in the best interest of the other

clients who may be using that FSD, and could well cause them to be unable to meet training and testing needs, or cause them to have to go to the actual aircraft to accomplish that.

The preamble to Part 142 articulates the safety, more realistic training, noise avoidance, and conservation advantages of simulation, which would be withdrawn from such clients. That would not be in the public interest. In fact, such a proposal could only be in the interest of economy to the FAA, but it could accomplish its safety and quality of training oversight role by eliminating the sponsorship concept or allowing training providers to be their own "sponsor" on behalf of all users.

Recommendation: That the FAA structure the proposed rule to specify that construction and comply with its own stated primary concern.

Re: Page 60288, ***Section 60.7, Sponsor Qualification Requirements,*** third paragraph, states that a person may continue to be a sponsor if the FSD is used for a minimum of 600 hours annually. It also states that the FSD must continue to meet the requirements of Part 61, among others. It states that a purpose of the hourly minimum is to ensure that **"…time, effort, and expense incurred by the Administrator…is appropriately incurred."**

Comment: While most FSDs are used many more hours than that proposed minimum, the case of low usage flight simulators and one-of-a-kind FSDs makes them even more critical to the aviation community. The situation of the Metro 2A FSD, which does not meet the minimum six-hundred hour training requirement, is an illustration. Would the FAA, despite its articulation of the advantages and necessity of flight simulation, as stated in the preamble to Part 142, this preamble, and other places, actually withdraw those advantages from such aircraft crews, and thereby jeopardize safety? Should a training center certificate holder who is willing to continue to operate such an FSD not be permitted to do so, which would be in the best interest of the aviation community, the public, and the training center? The Metro is an aircraft that may see revitalization due to growth of commuter airlines. Even 400 hour per year, for example, could yield approximately 800 hours per year of crew training and testing, which could provide for perhaps a couple of dozen crews. The quality and safety of those crews, and their passengers, is not insignificant, nor undeserving of the advantages which the FAA would withdraw.

There is a general ratio of annual FSD use to annual aircraft hours flown. Many, perhaps most, crews train every six months, or perhaps 20 or so hours per year in an FSD. Since most might fly about 20 to 50 hours a month, it is likely that the ratio of aircraft hours to crew training hours is around 10 to 20 to one. Given such a figure, or another that the FAA may provide, the FAA would by this proposal withdraw the advantages of simulation from operators whose aircraft that may be flown less than 6,000 to 12,000 hours per year, cumulatively per type. Can the FAA justify that withdrawal of safety and environmental advantages, even given its limited resources? When a comparison between FSD hours and aircraft hours is evaluated, the 600 hour per year minimum FSD usage proposal creates unresolved safety considerations.

The FAA is to be commended for attempting to conserve resources, but there is an obligation to promote safety; the expense is "appropriate".

One consequence of the 600 hour minimum proposal is having one dry lease sponsor fall below the minimum, while several other operators, which also do not meet the minimum, will be unable to train or sponsor the FSD. According to this proposal, all such operators would be denied the advantages of simulation.

For Part 135 certificate holders, the FAA should allow a Training Center certificate holder to develop and use a generic training program for those clients, and assure the Training Center certificate holder that each individual Principal Operations Inspector (POI) would accept this training program. The only way this proposal can begin to work is to have one approval of a training program, made by the Administrator; whether that person (Training Program Approval Authority, TPAA, proposed) is the TCPM of a Training Center or the POI of an air carrier, he or she should be the only, ultimate, and final representative of the Administrator.

The FAA should provide one approval of training programs. Clients with some specific differences needs could have an approved differences supplement to the training curriculum to meet those needs. Differences training is already used for variances within types of aircraft; the FAA has devoted a whole advisory circular to the topic; and it has defined it in Parts 121 and 135. The FAA should correct this situation in other parts of 14 CFR, and not attempt to do it in this proposed rule.
Should the FAA decide to have "the Administrator" approve training programs which could then be offered to and used by Part 135 operators, particularly those with needs below the proposed minimum, clearly articulate who can be the universal approval authority, and specify that approval of the Administrator does not mean approval by many different individuals (POIs) on behalf of the Administrator.

Recommendation: That the FAA delete the proposed 600 hour minimum, and let training and testing needs of the crews of various type aircraft and market forces decide what annual hourly level of services may be requested and offered.

Re: Page 60289, ***Section 60.7, Sponsor Qualification Requirements*** contains a mathematical equation as follows; **"24 hours in a day and 365 days in a year = 8760 hours in a year."**

Comment: This equation indicates training equipment is available for training 8760 hours per year. The FAA requirements of pre-flights and recurrent evaluations alone make this calculation incorrect, not to mention the QA requirements for proper maintenance. There is a lack of understanding of the FAA as to realistic training equipment operations and of the burden Part 60 places on the training equipment operator.

Recommendation: The FAA remove the incorrect FSD availability analysis and statements and subsequent impact rationale.

Re: Page 60289, ***Section 60.9, Additional Responsibilities of the Sponsor,*** explains that the FAA proposes to be able to make immediate inspections of an FSD, its records, and other documents.

> Comment: In the very last simulation rules that the FAA promulgated, 14 CFR Part 142.73(d), the FAA deliberately stated that inspections would be made "at a reasonable time." The FAA has not offered any rationale for this change. Also, it has not proposed conforming changes to Part 142, and the proposal would be in conflict with that rule. There is no need in this industry so great that it warrants this immediacy. In describing its own expected working hours, the FAA states, in § 60.19(b)(3) that it will be available only weekdays from 6 A.M. to 6 P.M. The FAA should address the economic impact of having certificate holders (sponsors) having persons on hand essentially around the clock to meet this requirement for unannounced inspections.
>
> Recommendation: That the FAA restate the time and place of all inspections to conform with its authority to do so under §142.73.

Re: Page 60289, ***Section 60. 9, Additional Responsibilities of the Sponsor,*** second paragraph, says the proposal would require personnel using an FSD, then lists flight crewmembers, to provide comments on the FSD and its operation.

> Comment: Flight crewmembers should submit any proposed comments regarding discrepancies to their instructor or evaluator to preclude potentially pejorative remarks.
>
> Recommendation: That the FAA delete any proposal to have flight crew members be required to provide record comments about an FSD or its operation.

Re: Page 60289, ***Section 60. 9, Additional Responsibilities of the Sponsor,*** the third paragraph says that proposed paragraph (b) would require maintaining a liaison with the manufacturer of the aircraft being simulated by the FSD.

> Comment: Several aircraft manufacturers are out of business, or may become so, or otherwise may not be interested in maintaining liaison with FSD manufacturers or operators. It is not likely that a requirement will be placed on the aircraft manufacturers to maintain liaison with FSD manufacturers or operators. This cannot be a unilateral requirement. Even aircraft manufacturers willing to maintain liaison with someone in the FSD business would likely want to do it only once, with the original FSD manufacturer, and not every "sponsor" in an evolving list of such sponsors during an aircraft or FSD's life. The FAA has not addressed this liaison, particularly repetitive in nature, as a cost burden to the several aircraft manufacturers. They would incur a cost factor, as would each of potentially several sponsors, which cannot be overlooked in the economic cost-benefit analysis of proper rulemaking. This is another point in favor of eliminating the sponsorship proposal and allowing the training providers to fulfill this function.

Recommendation: That the FAA delete any unilateral requirement for liaison with aircraft manufacturers. This would preclude repetitive costs to training providers and aircraft manufacturers.

Re: Page 60289, ***Section 60.11, FSD Use,*** second paragraph, states that this proposed section **"…requires a specifically-identified certificate holder as the sponsor…."**

Comment: Previous comments have already been made recommending that the sponsor concept should be dropped.

Recommendation: That the FAA delete any requirement for a sponsor to be a certificate holder; and specify that a Training Center or Training Center applicant may continue to fulfill all proposed roles of a sponsor and the term sponsor be eliminated.

Re: Page 60289, ***Section 60.11, FSD Use,*** fourth paragraph, states that **"proposed paragraph (b) would state that the FSD must be qualified for the make, model, and series of aircraft or set of aircraft and for all …configurations."**

Comment: That is a significant departure from § 142.59(a)(1). The FAA has not proposed any conforming change to § 142.59(a)(1). That section requires that an FSD must represent a make, model, and series of aircraft, or set of aircraft, (which do not require a type rating). It requires that an FSD must represent a type of aircraft for those aircraft that have a type rating. The "or" in the structure, and the FAA's own method of aircraft nomenclature for aircraft, make that clear. That section also does not require that an FSD represent a specific "configuration" or even "variant within type." The intermingling of type, make, model, and series, and "configuration" is confusing, contradictory, and not consistent with the FAA's own aircraft nomenclature system. It would preclude using a simulator representing a type of aircraft, for training or testing for another of a common type rating, and then using the FAA's own differences training scheme to address differences. Simulators such as the BA-700 and DC-9 are good examples. The FAA has not justified the change in the proposed section; it has not evaluated the cost of the impact; it has not proposed a conforming change.

Recommendation: That the FAA reword the proposed section, and all other places where the proposed wording appears, to conform with § 142.59(a)(1), which complies with all other parts of 14 CFR Chapter 1.

Re: Page 60289, ***Section 60.11, FSD Use***, sixth paragraph, contains two apparently undefined terms **"active programming"** and **"regular"** flight crew member.

Comment: What is active? Is it to distinguish from inactive? Non-active? Is a regular flight crewmember to distinguish from a relief crew? The terms are ambiguous and confusing.

Recommendation: That the FAA define the terms or declare that they were accidentally used. To leave them in as an artifact without such a definition or declaration leaves doubt about what the FAA intends in this area.

Re: Page 60290, ***Section 60.13, FSD Objective Data Requirements***, states that paragraph (f) of this proposed section would require that, **"when an FSD sponsor learns or is advised by an aircraft manufacturer or supplemental type certificate (STC) holder that an addition to, an amendment to, or a revision of the data used to program …an FSD…is available…., the sponsor must immediately notify the NSPM."**

Comment: There is no requirement for an aircraft manufacturer or STC holder to notify any sponsor of such an event. The aircraft manufacturer in great likelihood would not even know who the sponsor or sponsors operating FSDs representing aircraft of its manufacture are. This is a broken chain. And what about the instance where an FSD manufacturer obtains such data from alternative sources, such as those provided for in proposed § 60.13(b)? The aircraft manufacturer or STC holder or both might not even be or have been involved in the creation of the data from which the FSD is designed.

The FAA seems to recognize that manufacturers are not in this communication scheme, nor will they be, when it proposed (§ 60.23(b)) to require FSD sponsors to modify FSDs in accordance with an FSD Directive, which the FAA will issue, just like an Airworthiness Directive (AD) for aircraft. The aircraft manufacturer is not in the AD communication process; how can they be made to be or expected to be in the FSD Directive process? The need for a change in data or application of those data is direct from the FAA to the sponsor, as it should be in all instances, not from the manufacturer or STC holder to the sponsor to the FAA, as this proposal states.

Recommendation: That the FAA—

Acknowledge that aircraft manufacturers have no requirement to know who sponsors of FSDs are, nor any requirement to communicate anything to them.

Delete this unenforceable and non-enabled proposal.

Re: Page 60290, ***Section 60.13, FSD Objective Data Requirements***, first paragraph, states: **"This flight test data must come from the original certification flight tests and must include any data developed after the type certification was issued…"** etc.

Comment: If we are truly trying to improve the fidelity of the training equipment and use the best possible techniques and technology to produce accurate representations of the aircraft then we should encourage aircraft manufacturers to work with simulator manufacturers to produce flight test data specifically for the development of accurate simulation and math models. Aircraft certification data are generally incomplete for modeling purposes. Aircraft certification and simulator development have different and specific data requirements. Data collected for one purpose should not be considered acceptable for the other. This paragraph pushes the FSD industry in exactly the wrong

direction. This data issue extends beyond aircraft flight test data and into all facets of the simulation. All supplier data should be discussed to encourage better cooperation between simulator and aircraft manufacturers while holding the line on expenses.

Recommendation: The FAA delete the requirement for using original flight test data and encourage the use of data specifically collected for the purpose of developing simulation models to be used for training purposes.

Re: Page 60290, ***Section 60.13, FSD Objective Data Requirements***, sixth paragraph, states: **"…a revision of the data used to program and operate an FSD used in the sponsor's training program is available, the sponsor must immediately notify the NSPM."**

Comment: There is no major problem with communicating a data update or aircraft change to the NSPM but it would seem better to understand the change, how it affects the equipment and the training program, and how we plan to handle the situation along with a proposed schedule for implementation before we contact the NSPM.

Recommendation: The FAA strike the word "immediately" from the proposed § 60.13 and insert "within a reasonable time under the circumstances".

Re: Page 60290, ***Section 60.14, Special Equipment and Personnel Requirements for Qualification of the FSD,*** says that examples of special personnel would be those who are specifically qualified.

Comment: No mention is made here, or elsewhere, after initial application for qualification, of a pilot or pilots who are current and rated in the type of aircraft represented to be available for evaluation on a recurring basis. Is this not to be a continuing requirement? Is the requirement for specifically trained persons, as proposed in § 60.15(b), not intended for recurring evaluations?

Recommendation: That the FAA state if there is requirement for a person current and qualified in the type of aircraft simulated to be present and a part of the subjective testing and declarations for recurrent evaluations.

Re: Page 60290, ***Section 60.14, Special Equipment and Personnel Requirements for Qualification of FSD,*** second paragraph, states: **"The NSPM would notify the sponsor at least 24 hours in advance of the evaluation if special equipment or personnel would be required to conduct the evaluation."**

Comment: The 24 hour notice is impractical. We would need at least 10 calendar days notice in order to have some of the special test equipment such as the sound, motion, or control measurement equipment and the personnel to operate the equipment available on some of our simulators.

Recommendation: The FAA provide at least 10 calendar days notice for special test equipment and personnel.

Re: Page 60290, ***Section 60.15, Initial Qualification Requirements,*** second paragraph, states: **"Proposed paragraph (b)(2) would state that the request must include a statement that the sponsor has established a procedure to verify that the configuration of hardware and software present during the evaluation for initial qualification is maintained…."**

Comment: As previously mentioned, the maintenance required by proposed § 60.19(c) may also require changes to the configuration of the software (or hardware) present during the evaluation, in addition to modifications performed under the authorization of proposed § 60.23.

Recommendation: That the FAA change the paragraph to read "A statement that the sponsor has established a procedure to verify that the configuration of hardware and software present during the evaluation for initial qualification will be maintained, except for maintenance required by § 60.19(c) or where modified as authorized in § 60.23. The statement must include a description of the procedure."

Re: Page 60290, ***Section 60.15, Initial Qualification Requirements***, second paragraph, states: **"Proposed paragraph (b)(3) would state that the request must include a statement signed by at least one pilot who meets the requirements of paragraph (c)…."**

Comment. Pilots, particularly those of dry lease customers who are not employees of the Training Center, required to assert that they have determined that the FSD systems, subsystems, performance, and flying qualities of the FSD are the equivalent of the aircraft are reluctant to sign a letter because of perceived potential liability.

Recommendation: That the FAA change this proposed requirement to make it advisory material only and place it in the QPS only. (INCLUDE QPS, RULE AND 60.23. Or as an alternative an appropriately qualified FAA official should sign such a statement.

Re: Page 60291, ***Section 60.15, Initial Qualification Requirements,*** eighth paragraph, states that paragraph (g) would state that a Statement of Qualification would **"…identify the make, model, and series of aircraft…, identify the configuration of the aircraft…*e.g.,* engine model or models, flight instruments, navigation or other systems…."**

Comment: As stated earlier, these specific details for FSDs are unprecedented, not justified, and not even addressed in this proposal. The clear implication, if not actual statement, would make each qualification so specific that no other variation in type, or differences in cockpit configuration could be accommodated. This construction would disallow Training Center clients, even from the same client company, who might have some aircraft with two IRSs and some with three; some with two FMSs and some with three; some with two Automatic Power Reserve (APR) and some with three. There are many examples, but these serve to show that this proposal is unduly burdensome. In fact, it would so restrict many or most simulators to so few clients that they would not economical to operate. It would totally disregard the FAA's own differences training

concept, without any mention of eliminating that in the Conforming Changes to (other parts) of this preamble.

Recommendation: That the FAA reword this aspect of the Statement of Qualification to continue to allow variants within type and differences in cockpit configuration, and specifically to continue to allow differences of the magnitude that are and have been addressed through the use of a difference training program.

Further, Recommendation: That the FAA clearly state in any final rule preamble that it intends to allow those differences and differences training.

Re: Page 60291, ***Section 60.17, Previously Qualified FSDs***, second paragraph, states: **"Proposed paragraph (b) would require that sponsors of previously qualified FSDs obtain a Statement of Qualification, including the Configuration List and Restrictions to Qualification List within six (6) years after the effective date of this rule in accordance with the procedures set out in the appropriate QPS."**

Comment: This requirement can be used by the FAA to force the older training equipment to be updated to meet the Part 60 QPS. Further on in this section it states that the FAA "will mandate the use of new standards by issuing an FSD Directive." These statements used separately or together represent the possibility of considerable unjustified expense to the owners/operators of previously qualified training equipment.

Recommendation: That the FAA clarify or remove these statements and requirements from the preamble and rule.

Re: Page 60292, ***Section 60.17, Previously Qualified FSDs,*** last paragraph, states: **"…training devices, approved under § 61.4 for use in other than FAA-approved training programs…."**

Comment: Such devices have been used extensively in Pilot Schools under the provisions of § 141.41 and its predecessor wording, and this proposal does not address withdrawing that privilege. Pilot Schools operate with "FAA-approved training programs." Also, these devices may be used by a Training Center operating under an FAA-approved training program, as supplemental media, usually referred to as "training aids."

The fourth paragraph states: "However, if an FSD is continually in use, the FAA will allow the FSD to continue to operate under the original standards." That statement seems to be in contradiction with page 60289, which states that the FSD must be used a minimum of 600 hours per year or it will lose its qualification. Did the FAA intend to allow less than 600 hours per year for some FSDs, as long as they were in continual use?

Recommendation: That the FAA—

Delete the discussion about training devices approved under § 61.4 altogether, as it is not true and not germane.

Acknowledge in a preamble to a final rule that such uses are still allowed for these Level 1 Flight Training Devices; and

Clarify the intent about continual use of FSDs with reference to a minimum usage level.

Re: Page 60292, ***Section 60.19, Inspection, Recurrent Evaluation, and Maintenance Requirements,*** third paragraph, states that proposed paragraph (a)(2) would require a daily functional check; the actual proposed rule text states that the check must be completed **"…each calendar day prior to the start of the first FSD period of use that begins in that calendar day."**

Comment: This requirement is similar to that imposed already in § 121.407 and § 142.59, which would still remain, yet it is different from each of them, without explanation. The requirement would cause all those simulators that operate close to 24 hours a day, to shut down at the end of the period in progress at midnight, and await the completion of this work by a simulator technician. One technician may be supporting, and checking, several simulators. Some simulators could be out of operation for some hours simply to await this test. Particularly with the proposed increase in QA requirements, and the on-going nature of that QA, it would seem that one check in each calendar day would meet the needs of the operator and the FAA, yet would not impose on the operator the economic burden of down time on each simulator simultaneously. The simultaneous nature of these checks in a Training Center with numerous simulators does not allow for the optimum scheduling of available time of simulator technicians to be spread across the entire day; this impacts labor costs associated with this daily check, which are not addressed in the economic analysis of this proposal.

Recommendation: That the FAA reword this proposed requirement to read "once in each calendar day." Further, the FAA should delete the then contradictory requirement in §§ 121.407 and 142.59.

Re: Page 60293, ***Section 60.21, Interim Qualification of FSDs for New Aircraft Types or Models,*** third paragraph, states: **"The interim qualification would terminate one year after its issuance, if the sponsor has not applied for initial qualification using the final test data, unless the NSPM determines that specific conditions warrant otherwise".**

Comment: Interim qualification that would terminate after one year is not practical. The FAA has not proposed any accommodation for not having the final flight test data from the aircraft manufacturer. This is unrealistic. The simulator manufacturer or sponsor has no control over the release date of the final flight test data from the aircraft manufacturer. The FSD typically requires considerable rework to incorporate the final flight test data and the FSD manufacturer must produce a new version of the QTG. The rework alone can take six months or more after receipt of the final flight test data. It would be more realistic to require a new initial evaluation within one year of receipt of

the final flight test data from the aircraft manufacturer with a two year total limit on the initial interim qualification.

Recommendation: The FAA change the Interim Qualification time limits to one year after the release of the final flight test data from the data source with a total time limit on the initial interim qualification not to exceed two years.

Re: Page 60293, *Section 60.23, Modifications to FSDs*, first paragraph discussion of proposed paragraphs (a)(1), (2), (3), and (4).

Comment: These paragraphs bring up the questions of what changes in aircraft "functions," "other characteristics," and "operational procedures" are significant enough to warrant a modification to the training equipment. They also beg discussion on the fleet mix, change-outs and differences training. This all needs considerable clarification.

Recommendation: The FAA define the terms "functions," "other characteristics," and "operating procedures" clearly in order for the FSD manufacturer or user to determine when and what modifications to the FSD are "warranted".

Re: Page 60293, ***Section 60.23, Modifications to FSDs***, second paragraph discussion of proposed paragraph (b):

Comment: This paragraph states that the FAA can issue a FSD Directive that would require the training equipment to be modified regardless of "original qualification standards". Here again the FAA could "direct" the update, possibly to the latest qualification standard.

Recommendation: The FAA clearly define the circumstances that would produce an FSD Directive and what recourse the FSD manufacturer or Certificate Holder user has when an FSD Directive is issued.

Re: Page 60294, ***Section 60.25, Operation with Missing, Malfunctioning, or Inoperative Components,*** second paragraph, states: **"Due to the fact that the typical use of a "minimum equipment list" is associated with "safety of flight operations,"**…the FAA is not describing or requiring the use of an FSD "minimum equipment list."

Comment: The FAA does describe a simulator minimum equipment list in Appendix H to Part 121. It provides four levels of degraded use, driven by that list, which are totally contradictory with this proposed section. Appendix H further states, in the section of Appendix H titled "Level D, *Simulator Requirements*, paragraph 5, "diagnostic analysis printout of simulator malfunctions sufficient to determine MEL compliance." In addition, there is a great deal of discussion about this subject in the preamble to § 142.59, which refers to such guiding lists of equipment as "Simulator Component Inoperative Guides (SCIG)." The general regulatory requirement is in § 142.59(d), and the generation of comments that cause an item to be listed is in § 142.59(c)(3) and (4). The handbook guidance issued to Aviation Inspectors gives lengthy guidance about the use of

an SCIG. Incredibly, the FAA has not proposed withdrawing or amending either of these contradictory regulatory requirements.

Recommendation: That the FAA withdraw Appendix H of Part 121 for this proposed section or any of the rest of this proposed part to make any sense and be reasonable. It should make a conforming change to § 142.59, and it should give assurance in the preamble that contrary guidance in inspector's handbooks will be promptly withdrawn upon publication of any new proposed section such as this one.

Re: Page 60294, ***Section 60.25, Operation with Missing, Malfunctioning, or Inoperative Components,*** third paragraph states: **"Proposed paragraph (b) would require that within 7 calendar days, each missing, malfunctioning, or inoperative component must be repaired or replaced, unless the NSPM requires a shorter time or authorizes a longer time."**

Comment: This paragraph states that the FAA is proposing a 7 day time limit on repairing or replacing missing, defective or inoperable components. The proposed rule text states a time limit of 30 days. The 30 day limit is much more realistic. However, the language should include a procedure for time limit extension when necessary.

A 30 or 60 day discrepancy correction period is the current policy as established by the NSPM for NSPM-conducted FSD evaluations. This policy has been deemed acceptable by allowing more reasonable time periods for corrections, as well as addressing components that do not directly affect FSD operation. While there are components that are obviously a detriment to training (according to the requirements of the task defined in the syllabus), there are other components that have less of an effect or may not affect the training tasks at all. There are also many cases where outside support is necessary and the 7 day allowance will not be sufficient for the required coordination. Although these cases allow for requesting authorization from the NSPM, an increase in paperwork required for the request may become a detriment to providing the necessary training, if regular training schedules are disrupted.

The FAA has given the responsibility to Training Centers to determine which components of an operating aircraft are necessary to accomplish training tasks. It will also be the responsibility of Training Centers to accomplish the necessary corrections in less time, as necessary to complete the required training tasks without a disruption to the syllabus – a responsibility already in force in the industry, regardless of the allowable discrepancy correction time periods.

Recommendation: The FAA offer a more realistic time limit such as 21 calendar days and define extension request guidelines and a procedure to preclude the loss of scheduled training due to possible delayed reaction to an extension request from the NSPM.

This same paragraph indicates that the inoperative component requirement applies "not only applies to components that are necessary for flight crew member training, evaluation or flight experience, but also to all other components of the FSD."

Comment: The term "all other components of the FSD" is much too broad and will cause unnecessary record keeping and expense. Only items that would affect training should be included in this requirement. Many maintenance items on a FSD are completely transparent to training.

Recommendation: The FAA delete the phrase, "not only applies to components that are necessary for flight crew member training, evaluation or flight experience, but also all other components of the FSD" and limit the affected components to those that have an impact on training.

Re: Page 60295, ***Section 60.29, Other Losses of Qualification and Procedures for Restoration of Qualification,*** **"Proposed paragraph (c)"**implies that the NSPM may withdraw qualification from an FSD, and that the sponsor would have to stop using it immediately

Comment: The TCPM or POI is the FAA approval authority for the use of a FSD. This proposal continues to recognize that, and would call them collectively the Training Program Approval Authority (TPAA). The authority to approve connotes the authority to disapprove or to refuse to approve.

The process to use an FSD has always been Evaluation, Qualification, and Approval, with the first two steps in the process accomplished by the NSPM. This proposal, except for the operation of this particular paragraph, also recognizes and continues that process. The FAA needs to continue to allow the TPAA to fulfill its function, with all that it connotes. No emergency in simulation is so dangerous that there is no time to consult with the TPAA. The NSPM needs to continue in a technical role, as proposed everywhere else in this rule, and give advice on approval actions to the TPAA; it needs to not be involved on approval, disapproval, or withdrawal of approval.

This proposed paragraph, and its preamble discussion of it, makes no mention of "approval." It simply mentions "withdrawal of qualification," and states when that withdrawal would become effective. This section should be consistent with precedent and the rest of the proposal, and recognize that "approval" which embraces the whole training program, is a critical role, but not an NSPM role. The FAA needs to keep in mind that 'qualification" and "withdrawal of qualification" is not the same as "approval" and "withdrawal of approval." The distinction between technical functions and operational considerations should continue to be maintained.

Recommendation: Reword proposed § 60.29 and a preamble explanation of it to indicate that the NSPM will notify the TPAA and the Training Center certificate holder of a perceived "emergency" situation and recommend to the TPAA a course of action to be taken with regard to use of a particular FSD.

Re: Page 60295, ***Section 60.31 "Record keeping and Reporting",*** second paragraph, states that the proposed paragraph (a)(2) would require the FSD sponsor to maintain a copy of the programming used during evaluation of the FSD for initial qualification or upgrade, as well as a coy of all programming changes made since the evaluation for initial qualification.

Comment: This proposal places stricter and much more costly requirements on documenting software and hardware changes made to the simulator after the initial qualification. Would this include software changes to correct day-to-day simulator and aircraft systems write-ups and real world updates such as radio and airport data, IOS updates, etc? Would this require complete copies of each software and hardware iteration, software listings and hardware changes or a log that lists the changes? The NSPM appears to have little concept of the magnitude and cost of this requirement.

Recommendation: The NSPM track changes to the FSD via the modification requirement in proposed § 60.23(e) and limit the area of concern to FSD changes that impact the MQTG, Ground Handling Qualities and Performance and In-Flight Handling Qualities and Performance that have a direct impact on training and safety.

Re: Page 60295, ***Section 60.31 "Record keeping and Reporting"***, last paragraph, states that proposed paragraph (d) would require the sponsor to submit an annual report certifying that the FSD continues to perform and handle as qualified by the NSPM.

Comment: With the FSD record keeping in place today, including the discrepancy log, the quarterly inspections, and modification notification and approval; the TCPM and POI training program approval and surveillance, as well as the new proposed QA Program, and NSPM Audits, what is the purpose of this report?

Recommendation: The FAA eliminate this redundant proposal.

Re: Page 60296, ***Section 60.35, "Specific Simulator Compliance Requirements"***. This entire preamble discussion, with its mention of obsolete terms, obsolete computer terms, etc., is an argument for immediate removal of the contradictory Appendix H of Part 121.

Recommendation: That the FAA remove Appendix H to Part 121 as a part of this rulemaking.

Re: Page 60296, ***Section 60.35, "Specific Simulator Compliance Requirements",*** second paragraph states: **"…18 months after (the effective date of the final rule for proposed part 60)…the flight simulator being evaluated for initial or upgrade qualification must conform to the aircraft being simulated, and must simulate the operation of all equipment or devices intended to simulate aircraft appliances installed and operating on the aircraft."**

Comment: This seems to say that after 18 months of Part 60 (being in effect) all simulators must simulate everything in the aircraft they represent. Would this mean that a Level B simulator must have color weather radar simulated if the aircraft is outfitted with color weather radar, etc.?

Proposed QPS requirements for FTD levels 1, 2, 3, 4, 5, and 6, as well as for simulator Levels A, B, and C do not include simulating the operation of all equipment and appliances installed on the *airplane* (aircraft) being simulated. FTDs could fit the

definition of a "simulator" and therefore would not be compliant. Use of the word "simulator" is too ambiguous in this context.

Recommendation: The FAA strike the all encompassing term "all equipment or devices" and clarify the intent of this proposed section to include the equipment simulation requirements for each level of "flight simulator" as well as specifically refer to FSD levels A-D and clarify the definition of a "flight simulator" to refer to FSD levels A-D.

Re: Page 60297, **"Conforming Changes to Parts 61, 63, 141, and 142".**

Comment: The second paragraph states that the devices described in § 61.4 may be used only for private pilot certification and the instrument rating. As pointed out in comments to the preamble discussion of Page 60292, *Section 60.17, Previously Qualified FSDs*, this is not true. They may be used for several other purposes, as previously qualified to do. Also, this section does not list Part 1, yet the proposal includes a proposed change to Part 1. It also does not include Parts 125, 135, and 137, and it should.

Recommendation: That the FAA restate in the preamble to a final rule that devices described in § 61.4 may be used as previously qualified and permitted, and that those devices have several uses in Part 141 Pilot Schools, as allowed by § 141.41.

Recommendation: That the FAA acknowledge in the preamble to a final rule that there are conforming changes to other parts of 14 CFR, specifically Part 1.

Re: Page 60297, **"Conforming Changes to Parts 61, 63, 141, and 142".**

Comment: As stated earlier in these comments, it is mandatory to withdraw Appendix H of Part 121 in order for Part 60 to be possible or to make any sense. Numerous other sections of Parts 121and 142, and perhaps other parts must be changed. Most notable, and already mentioned, are §§ 121.407 and 135.335; 142.59; 141.41; 135.324 and 135.321(a)(1) and 121.402 (because the status of a 'sponsor" would cloud the authority and restriction of this section); 61.58(e), particularly 61.58(e)(2)(ii); 121.424(d), which still mentions simulators without a visual system, contradictory to proposed Part 60; and §§ 125.296 and 125.297. This list is not intended to be all inclusive, just the major existing rule sections which would be contradictory to proposals of Part 60.

Recommendation: That the FAA attend to the contradictory circumstances of the rules cited, and conduct a comprehensive review of all rules that would be in contradiction, and eliminate those contradictions. To do otherwise is to make light of a section titled "Conforming Changes."

Re: Page 60298, **"Paperwork Reduction Act,"** under ***Respondents*, "The likely respondents to this proposed information requirement are sponsors of Flight Simulation Devices."**

Comment: At this time, there are no "sponsors" of Flight Simulation Devices. The FAA has never before defined the term; that is a current proposal. The number of likely

respondents cited, 66, appears to be approximately the number of air agencies holding a certificate under Part 142 and those air carriers under Parts 121 and 135 who have their own simulators. In fact, the proposed requirement for, and responsibility and authority of sponsors is at odds with the requirements, responsibilities, and authorities of Part 142 certificate holders, without explanation or justification.

Recommendation: That the FAA make it clear that there are currently no sponsors, that the term is undefined, and is a current proposal.

Re: Page 60298, **Paperwork Reduction Act. "Annual Burden Estimate"**

Comment: This entire section contains questionable calculations based on assumptions. The FAA should review the assumptions and calculations to determine if the burden estimate is consistent with industry exposure. The estimates in each section point out the lack of understanding on the part of the NSPM in practical terms as to the additional burden the requirements this NPRM place on an already struggling industry. Section 60.23, Modifications to FSDs, is particularly interesting and offers a clearer insight into the NSPM definition of 'Modifications". The term "Modifications" as used in this proposed rule is in desperate need of clarification and agreement between the NSPM and industry. Some changes to a FSD that are performed in two hours may fall under the definition of "modification" but in the majority of the instances where a modification as is typically defined by industry is performed on a FSD the scheduled installation time is measured in days and weeks, not hours. It is also true that consideration must be given to modification preparation. If the NSPM requires a "modification" on a FSD then the entire process of gathering the information needed, designing the modification, staging parts and personnel, altering training schedules, as well as installation, simulation check-out and acceptance must be accounted for as well in order to describe an accurate picture of the overall impact.

The other sections mentioned in the Paperwork Reduction Act are also erroneous to the extent that they require serious review. The term paperwork reduction act is truly an oxymoron as it has been applied to proposed Part 60. The "Annual Burden Estimate" does not offer a realistic insight into the daily operation and upkeep of a FSD.

Recommendation: The FAA completely recalculate the burden this NPRM creates by using accurate input from industry to the extent industry is willing to share information. The FAA should also find agreement with industry on the definition of "Modification".

Re: Page 60301, **"Regulatory Evaluation Summary",** fourth paragraph, states: **"The proposed requirements are based on requirements in appendix H of part 121 and in the current § 121.407 as well as advisory circulars."**

Comment: In fact, the proposal is based almost entirely on advisory circulars, in particular Advisory Circulars 120-40, 120-45, and 120-63. Discussion in the preamble to this rule even mentions certain terms that are in the other two references as obsolete. The

FAA should not continue to ignore Part 142 and the enabling bridges, particularly § 121.402, 125.296, and 135.324

Recommendation: That the FAA revise the Regulatory Evaluation Summary of this preamble, and other sections, to accurately reflect who is really being impacted by its proposals, to recognize and acknowledge its own current rules, and to recognize and react to obsolete sections as identified by its own discussions, instead of citing them as the basis of the proposal.

Re: Page 60301, **"Regulatory Evaluation Summary"** sixth paragraph, states: **"Based on safety considerations…."**

Comment: In fact, the FAA has not cited any safety considerations in its preamble for this proposed rule. It has cited administrative streamlining, and incorporation of *de facto* requirements into a regulation instead of in advisory material, but it has not cited any safety concerns. In fact, as already discussed, safety may be compromised if the proposals were to be adopted in the present form, e.g., the 600 hour minimum.

Recommendation: That the proposed rule be withdrawn.

Re: Page 60301, **"Regulatory Evaluation Summary"** sixth paragraph, states: **"…sponsors (*nonexistent, added)* would either retire their Level A simulators or downgrade them to Level 6 Flight Training Devices at a minimal cost to the industry."**

Comment: The conversion of Level A simulators would present an extraordinary cost to the industry. The air data handling packages for the aircraft represented are non-existent. The cost of conducting flight tests to derive that data would be exorbitant. To convert them to Level 6 FTDs would be to lose the advantage of motion, which the FAA, in particular the NPSM, has strongly favored and embraced for realism in training and testing, as opposed to simulation with visual cues only. Continuing to maintain a motion system for a Level 6 FTD, for no credit in addition to that afforded a Level 6 FTD, would represent a huge cost with no benefit to offset it.

The bottom line would be that users of many aircraft, such as the older King Air, Turbo Commander, Lear 25, Gulfstream I, Jetstar, etc, would have no simulation device at all available to them. The time-tested safety-driven need for these simulators will be there as long as the aircraft they represent are flying. It is obvious that new simulators, Level B through D, will not be developed for these older aircraft, so the withdrawal option is to withdraw all simulation safety advantage from this segment of the aviation population. This is not in the interest of safety. In fact it compromises safety with no regard for consequences. Even the FAA has acknowledged the safety and environmental benefits of simulation, in the preamble to Part 142 and this rule. How can the FAA justify withdrawing those benefits from one segment of the aviation community? Just as the FAA would not propose that all operators of those aircraft abandon their aircraft, it should not propose that Training Centers abandon the representative simulators.

This preamble paragraph also states that the withdrawal proposal is based on safety considerations. The FAA has not shown any safety considerations at all; quite the contrary. In fact, this proposal appears to be based solely on a desire to reduce the FAA's cost of continuing evaluation of current flight simulators.

The pilots of the aircraft that these FSDs represent may need the benefits of simulation training most; these aircraft typically do not have the latest in avionics and warning systems, and many are even operated single-pilot.

Regardless of the action that the Training Center takes, i.e., upgrade or downgrade the FSDs, the cost to the Training Center will dramatically increase. This increase in cost will come with no increase in benefits to the users and no increase in safety. Only if this proposal is withdrawn can the level of safety remain the same as now.

The FAA has not proposed allowing any middle ground; operators would have to pay more to have the training providers upgrade the Level A simulators to be able to achieve the same advantages as currently allowed; or pay less and revert to aircraft training, with the compromise in safety.

Recommendation: That the FAA delete the proposal to eliminate Level A simulators, and let the market demand and aircraft obsolescence (much the same as for the actual aircraft) determine when these simulators are no longer viable.

Re: Page 60301, **"Regulatory Evaluation Summary",** end of seventh paragraph, states that the QA proposals would afford the FAA **"…the ability to focus a more constant personnel resource on safety areas more deserving of individualized scrutiny."**

Comment: What areas has the FAA identified as more deserving of its personnel resource's time than the way crews are trained? When the FAA and National Transportation Safety Board continue to find that most aviation accidents are caused by human factors, is not the fidelity and efficacy of training a most deserving area of concern for the FAA?

If staffing is the driving issue behind this statement, an alternative would be for the FAA to designate persons to conduct FSD evaluations under the provisions of 14 CFR Part 183. In fact, the current proposal is for a training provider (sponsor) to conduct three of four recurrent evaluations; it would seem logical to extend this assignment to total designation (Designated Simulation Evaluators, DSE), especially considering the proposals for a QA program and NSPM audits.

Recommendation: That the FAA state whether it is ascribing less importance to training, and to simulation as a tool in that training, as a means to improve safety.

Additional Recommendation: That the FAA designate persons to conduct FSD evaluations on behalf of the Administrator.

Re: Page 60301, **"Regulatory Evaluation Summary",** paragraph 7, states: **"There are five types of safety and economic benefits of incorporating a QA program for each FSD sponsor."**

Comment: The first "type" of benefit mentioned is the identification of flight crew training problems to the user and the FAA due to problems with the FSD. The FAA states that the user (flight crew) are typically the first to experience a problem and are very aware of a situation that might alter or restrict training. The next flight crew scheduled to use the FSD are made aware of issues with the FSD prior to the start of training. The TCPM and POI are aware of any issues on the FSD that pertain to training. The records to support these functions exist today. The QA program does not add benefit to the user or the FAA but does add burden to the training industry by placing additional record keeping functions with no added value.

The second "type" of benefit mentioned is that FSD problems that would create interruptions to training would be corrected "quickly" and "accurately" so training could resume. The primary function of a FSD is to provide training under conditions that are not possible or safe in an aircraft. While it is true under this premise the FSD could be operating with a defective condition and still achieve the desired training it is also true that the FSD is now corrected immediately upon notification that a condition exists that will not allow the desired training to take place. The QA Program does nothing to add insurance that the notification of a FSD problem during training will occur at all or that corrective action will happen in a timelier manner.

The third "type" of benefit mentioned is that the "sponsor" would realize a cost savings due to reduced mistakes. It is unclear what "mistakes" would be eliminated. The QA Program would have no affect on training mistakes or instructor mistakes. The FSD does not make mistakes. Some part of a FSD might malfunction but there is nothing in the QA Program that would prevent that from happening.

The fourth "type" of benefit mentioned is that the "sponsor" would realize cost savings due to reduced NSP staff visits. In fact the NSPM has proposed that the Training Center now perform three of the four required quarterly evaluations on each FSD. This means the NSPM would visit once per year to evaluate an FSD. However, it is indicated in this proposed rule that the one evaluation the NSPM would perform each year on each FSD would require an 8 hour block of FSD time. This increases the burden on the industry by one evaluation on each FSD per year from two per year to three per year and increases the burden and cost of the one NSPM evaluation by 4 hours per year on each FSD. This equates to five recurrent evaluations per year. This additional cost and manpower burden is by no means insignificant. The QA Program has created a large increase in cost rather than the stated savings.

The fifth "type" of benefit mentioned is that the tax payers and "sponsors" would realize a savings due to less frequent on-site FSD evaluations by the NSPM and therefore no growth in population within the NSPM. The QA program puts in place on-site NSPM QA audits that are not part of the NSPM work-load at this time. The "ever expanding

fleet of FSDs" will place an ever increasing burden on the NSPM to perform the on-site evaluations and the additional audits required by the proposed QA Program. The population of the NSPM will expand. It appears that Part 60 is designed to expand the role and population of the NSPM rather than reduce or freeze the outlay for the program. The tax payers and "sponsors" will realize absolutely no savings and in fact will realize reduced return on their investment in the NSPM. There can be no claim of increased focus on safety issues by implementing the proposed QA Program. The pilots and engineers that now make up the NSP staff will evolve into QA Auditors requiring very little aircraft or simulation expertise. It would seem that over time the emphasis on safety issues as they pertain to the use of FSDs would fall more and more to the TCPM and POI.

The proposed QA Program offers no value to safety, the taxpayers, or the FAA, and creates a huge burden for the training industry.

Recommendation: The FAA eliminate the "five benefits" statements from this section and eliminate the proposed QA Program requirement.

Re: Page 60301, **"Regulatory Evaluation Summary",** last paragraph, states: **"Those who operate airplanes under other parts of the regulations and wish to use appendix H authorizations have to obtain exemptions from the certificate holding requirements of part 121…."**

Comment: This is not correct. Refer to 14 CFR Part 142. The preamble to that rule makes it perfectly clear that a major purpose of that rulemaking was to eliminate exemptions to allow operators who are not air carriers to use simulation for pilot training and certification. The FAA made clear its intention about who could use simulation and under what circumstances in § 142.1, which states: "…after August 3, 1998, no person may conduct training, testing, or checking in advanced flight training devices or flight simulators without, or in violation of, the certificate and training specifications required by this part." This commenter, and numerous others, has gone to great expense to comply with the Part 142 rule; and as far as can be determined, no one else, operates under exemptions that Part 142 was announced as replacing. Further, the statement in this preamble paragraph states that persons could seek exemptions from Appendix H of Part 121 and thereby ignore, and be in violation of, § 142.1. The cited preamble paragraph goes on to state, "Its application (*Appendix H, clarification added*) therefore, would be expanded beyond just those who operate under part 121." Again, see § 142.1; that rule already allows persons who do not operate under Part 121 to use any and all simulation. Why would the FAA even want to broaden the application of Appendix H, when it already has a rule that does that, when Appendix H is obsolete, even according to terms placed in this very NPRM? The FAA has not proposed to delete Part 142, one of its newest rules. Yet this proposal, and particularly this supposed justification paragraph basically ignores Part 142, or indicates that some proposed rule-drafting persons are not familiar with it. To avoid this illogical situation, the recommendations shown below should be adopted.

Recommendation: That the FAA –

1. Make a declarative statement in the preamble to any final rule that this section of this preamble was in error;

2. Make a declarative statement as the existence and viability of Part 142;

3. Comply with, and continue to allow certificate holders to comply with Part 142; and

4. Delete Appendix H of Part 121.

Re: Page 60302, **"Energy Impact"**

Comment: If this proposal were to be adopted as proposed, it would eliminate all Level A simulators and all those which are used less than 600 hours per year. That would likely, at least potentially, drive all the users of those simulators to train and be tested in the actual aircraft that these simulators represent. That would have an impact on energy consumption, which the FAA must account for under the Energy Policy and Conservation Act, Public Law 94-163, and its own Order 1053.1.

For example, if the Sabre 65 airplane fleet flew 1500 hours per year for training and testing instead of using existing Level A simulators. To do that in the airplanes instead would consume 447,000 gallons of fuel. When one considers the 29 Level A simulators presently operated in the industry, using similar calculations, the additional energy consumption would be significant if the simulators were withdrawn. As previously discussed, (see comments on page 24: Re: Page 60301, **"Regulatory Evaluation Summary"**) it appears that conversion to Level B or higher would be cost prohibitive.

Recommendation: That the FAA reevaluate the energy impact of its proposals with specific address to adding the energy consumed by those aircraft placed back in the air by the proposed elimination of the Level A simulators and the proposed 600 hour minimum FSD usage requirement.

Rule

Re: Page 60302, **"List of Subjects"**

This section of the preamble lists several parts of 14 CFR, but does not list Part 135. There are hundreds of Part 135 certificate holders which operate at Training Centers certificated under Part 142; in fact, this is likely the single largest segment of simulation users. Without considering Part 135, and this proposal does not, this proposal cannot make sense. Similar comment applies to Part 125, and to a lesser degree, Part 137.

Recommendation: That the FAA—

1. Revise this section of the preamble to include Part 135, and consider the impact on Part 135 throughout the proposal;

2. Make conforming changes throughout Part 135; and

3. Include, and make the same changes to and for Parts 125 and 137.

Re: Page 60303, § 60.1, **Applicability.**

Comment: Subparagraph (c) refers to § 60.31, which is the wrong reference; § 60.33 would be the correct reference.

Recommendation: Review and correct the cited cross reference.

Re: Page 60303, § 60.2, "**Applicability of sponsor rules to persons who are not sponsors and who engage in certain unauthorized activities".**

Comment: Paragraph (a)(1) appears to add another step in the process of being able to use an FSD, one which not even this NPRM proposes. The steps, in order, have been, and remain in this proposal, evaluation, qualification, and approval. This subparagraph adds another, approval as a sponsor. See the proposed definition of "Sponsor" in proposed § 60.3. Even there, there is no mention of being "approved" as a sponsor.

Recommendation: Reword the section to remain consistent with the current practice and the proposed steps of evaluation, qualification, and approval (of an FSD)

Paragraph (b) provides an example, but only one.

Recommendation: Place in the rule prohibited and permitted practices, that is, rules, but restrain from giving examples in other than advisory material, as they cannot be all inclusive.

Re: Page 60303, § 60.3, **"Definitions".**

Comment: *Certificate holder*; this definition does not include certificate holders under Parts 125 and 137, which it must.

Flight experience; this is a new term at odds with § 61.1, and other parts of 14 CFR, and not used consistently even within the body of proposed Part 60 (see comments under § 60.20). (See if we meant the comments or actual rule text).

Recommendation: Add Parts 125 and 137 to the list of certificate holders in this section. Delete, or reword significantly, the term *Flight experience* as discussed more fully under comments to and recommendations about § 60.20.

Re: Page 60304, § 60.5, **"Quality Assurance Program".**

Comment: This proposed section does not mention an appeal process, as implied in the preamble. As asked in comments about the preamble to this proposed section, is there a time limit to implement changes to the QA program? Is there an impact on the qualification of the training equipment in the interim?

Recommendation: The a complete description of the consequences concerning the NSPM requirement for an "appropriate modification" and the "appeal process" mentioned on page 60288 of the Preamble.

Re: Page 60304, § 60.5, "**Quality Assurance Program"**, paragraph (d) states: **"each sponsor of an FSD must identify… one individual, who is an employee of the sponsor, to be the management representative….".**

Comment: This commenter has concern about delayed or confused communication with the FAA concerning recurrent evaluation schedules, the resolution of FAA write-ups, requests for extension of deadlines, and other NSPM issues through the "sponsors management representative" if the management representative is someone other than FSI Training Center Manager or the Center Manager's designee.

Recommendation: The FAA eliminate the term "sponsor" and allow the Management Representative be an employee of the certificate holding Training Center which operates the FSD.

Re: Page 60304, § 60.7, « **Sponsor qualification requirements ».**

Comment: Paragraph (b)(1) says that all certificate holders under Part 142 are sponsors, since there is no "and" between (b)(3) and (b)(4). Each of the four conditions stand alone. Was that intentional, but just not addressed in the preamble?

Recommendation: Reword the section to make it clear that this is (or is not) the FAA's intent.

Comment: Paragraph (c)(2) does not include Part 125 nor Part 137. Part 125 is at issue at the present time; there is potential under existing rules for Part 137 to make more use of simulation.

Recommendation: Add the omitted Parts of 14 CFR to this paragraph.

Re: Page 60304, § 60.9, **"Additional responsibilities of the sponsor".**

Comment: The "inspect immediately" feature of paragraph (a) contradicts existing §§ 142.29 and 142.73. Why? The FAA has not shown a need for this immediacy. It has not proposed withdrawal of those sections, with which it would contradict.

Recommendation: Withdraw any mention of when records must be made available, as it is covered in existing rules. Absent that action, at least word the section to match the wording in the cited sections.

Re: Page 60304, § 60.11, **"FSD Use",** proposed § 60.11(d)

Comment: In reference to visual software including (but not limited to) environmental databases and calibration parameters, changes may be required to the software and active programming that were in place during the NSPM evaluation. These changes may be the result of the requirements set forth in proposed § 60.19(c) for maintenance, or modifications allowed by proposed § 60.23 (including the following proposed revisions). The changes should be recorded in accordance with proposed § 60.31(a)(2) (including the following proposed revisions). The FSD should be allowed to be used after the authorized changes.

To further justify, it should be noted that most modern simulators, technically speaking, require the modification of software parameters to control the simulator mechanics in lieu of mechanical control. This is strongly evident in the visual system software where such items as RVR and visibility calibrations are a function of software parameters that must be manipulated to compensate for hardware variability and degradation. It is also true that many other systems on a modern FSD also require such software parameter manipulation to ensure that the FSD continues to meet proposed §60.15(b).

Further, in reference to visual software, environmental databases (a form of software) have shown a need to be continuously updated/changed after the initial qualification of an FSD. Examples of these needs include inspection induced changes that are made to a common environmental database files that are required (by the NSPM) to be distributed to all related FSDs (required by proposed §60.23(b)), updates to common environmental databases as a result of discrepancies reported on other FSDs, and periodic updates due to changes in the real-world regarding the configuration of the environmental databases. Changes may be required to be made within days, whereby the requirements of the proposed §60.23 for modifications to FSDs are not practical for this application, with regards to NSPM/TPAA notification and the subsequent response time.

Recommendation: The FAA change the wording in § 60.11(d) to read as follows: "Functions during the training, evaluation, or flight experience with the same software

and active programming that was evaluated by the NSPM, except for changes as a result of maintenance required by § 60.19(c) or modifications as authorized in § 60.23."

Re: Page 60305, § 60.13, **"FSD Objective Data Requirements",** paragraph (f) states: **"…a revision of the data used to program and operate an FSD used in the sponsor's training program is available, the sponsor must immediately notify the NSPM."**

Comment: There is no major problem with communicating a data update or aircraft change to the NSPM but it would seem better to understand the change, how it affects the equipment and the training program, and how we plan to handle the situation along with a proposed schedule for implementation before we contact the NSPM.

Recommendation: The FAA delete the word "immediately" from § 60.13 (f).

Re: Page 60305, § 60.14, **"Special Equipment and Personnel Requirements for Qualification of FSD".**

Comment: We have no objection to the proposed rule text. However, the preamble to this section, and the elaboration of it in the QPS, state, essentially: "The NSPM would notify the sponsor at least 24 hours in advance of the evaluation if special equipment or personnel would be required to conduct the evaluation." As stated in reference to the preamble to the section, the 24 hour notice is impractical. We would need at least 10 calendar days notice in order to have some of the special test equipment such as the sound, motion, or control measurement equipment and the personnel to operate the equipment available on some of our simulators.

Recommendation: That the FAA place any time limitations it wishes to impose in this section, the actual rule text, and not in the QPS as a hidden requirement. This recommendation is applicable to all other: "requirements" that are buried in the QPS text, but should be in the actual rule text.

Recommendation: The FAA provide 10 calendar days notice for special test equipment and personnel

Re: Page 60305, § 60.15, **« Initial qualification requirements ».**

Comment: Paragraph (b)(3) refers to a pilot meeting the requirements of (c). There are no pilot requirements in that paragraph. Did the FAA mean paragraph (d)?

Recommendation: Correctly number the paragraphs and subparagraphs.

Comment: Pilots, particularly those of dry lease customers who are not employees of the Training Center, required to assert that they have determined that the FSD systems, subsystems, performance, and flying qualities of the FSD are the equivalent of the aircraft are reluctant to sign a letter because of perceived potential liability.

Recommendation: That the FAA change this proposed requirement to make it advisory material only and place it in the QPS only.

Comment: Paragraph (b)(3)(iii) refers to "make, model and series" of aircraft. This would be horribly expensive, is not accurate, and is not in keeping with current practice of any existing rules or nomenclature of aircraft. See the detailed comments about this proposal above, in the comments to the preamble to this section.

Recommendation: Delete the words "make, model and series" of aircraft from all places in this proposed rule.

Comment: Paragraph (b)(5) should direct the user to the advisory material in the QPS for further detail.

Recommendation: Reword paragraph (b)(5) to state "A qualification test guide (QTG) that contains all the following and that is acceptable to the NSPM."

Comment: Paragraph (g)(3) lists examples, but is not an all-inclusive list of possible examples. It leaves one to wonder what else the FAA might have in mind, or might declare as an example fitting this rule in the future.

Recommendation: Place in the rule prohibited and permitted practices, that is, rules, but restrain from giving examples in other than advisory material, as they cannot be all inclusive.

Re: Page 60306, § 60.17, **"Previously qualified FSDs".**

Comment: As written, paragraph (b) would require training providers to initially qualify each of its existing and already-qualified simulators within six years. The need for this is not adequately addressed in the preamble. The cost for this duplicative qualification process is not addressed, and it is extremely high. If the FAA intent was to unilaterally issue a new Statement of Qualification (SOQ) to every currently-qualified FSD, the language of a final rule should make clear that intention. Additionally such added costs need to be used in amending previous cost estimates for this proposal.

Recommendation: Withdraw or rewrite the proposed paragraph (b) requiring all currently qualified simulators undergo a new initial qualification within six years, or any other period.

Comment: Paragraph (c) states: "…the qualification *basis*…for re-qualification will be those *standards* in effect and current…." This intermingling of words is ambiguous and confusing. Does the FAA mean the standards for re-qualification will be those standards in effect and current at the later time?

Recommendation: Reword this section to use consistent terms.

Re: Page 60306, § 60.19, **"Inspection, recurrent evaluation, and maintenance requirements".**

Comment: Paragraph (a)(2) would require that those simulators that operate close to 24 hours a day would have to shut down at the end of the first period after midnight. See the detailed discussion of this proposal in comments about the preamble to this section.

Recommendation: Reword this proposed requirement to read "once in each calendar day that the FSD is used for training." Further, the FAA should delete the then contradictory requirement in §§ 121.407 and 142.59.

Re: Page 60307, § 60.19, **"Inspection, recurrent evaluation, and maintenance requirements".**

Comment: Paragraph (b)(3) specifies right down to the half-hour limit on weekdays only the time that the FAA plans to undertake its work, yet it has proposed in § 60.9(a) that certificate holders (sponsors) must be in a position to respond immediately, seven days a week. While the FAA may have budget constraints on its workforce, perhaps limiting overtime or off-shift work, so does the industry.

Recommendation: Revise § 60.7 to wording similar to § 60.19 and/or § 142.73 to recognize that the industry has an economic burden associated with certain scheduling demands, too.

Re: Page 60307, § 60.20, **"Logging FSD discrepancies".**

Comment: This section is redundant with §§ 121.407 and 142.59, but adds terms that make no sense and only confuse the realistic requirement. This proposal defines, in § 60.3, *Flight experience* as landings only (or something not specified that would give credit for landings), yet in this section it defined flight experience as "…flight experience for flight crew member certification or qualification." The existing rules embrace landings, in the several parts, under recency of experience requirements. Proposed § 60.20 makes it something else, unknown, and not consistent with the definition within the part. Section 61.1(b)(1) defines *Aeronautical experience* as "pilot time obtained in an aircraft, flight simulator, or flight training device for meeting the appropriate training and flight time requirements for an airman certificate, rating, flight review, or recency of flight experience requirements." Is this section intentionally changing only part of that definition? And if so, for what purpose? Why did the FAA not propose a conforming change to § 61.1 if change was its intent? Also, § 60.20 avoids the wording "training, testing, and checking", commonly used in other parts of 14 CFR, which embrace all the activities that are approved or envisioned for FSDs, and are consistent with the certification and operating requirements of 14 CFR.

Recommendation: Reword this section to delete "training or evaluation, or observing flight experience" and to state "training, testing, or checking" to be all inclusive and consistent with other rules.

Re: Page 60307, § 60.23, "**Modifications to FSDs",** proposed paragraphs (a)(1), (2), (3), and (4)

Comment: These paragraphs bring up the questions of what changes in aircraft "functions," "other characteristics," and "operational procedures" are significant enough to warrant a modification to the training equipment. They also beg discussion on the fleet mix, change-outs and differences training. This all needs considerable clarification.

Proposed paragraph (a)(1) would cause a significant cost to training centers, and disregard timeliness of modifications to conform with the majority of the aircraft fleet. Training providers need to maintain the flexibility to modify FSDs to respond to the demands of the particular fleet, and not have to modify them as soon as new data may be developed.

Recommendation: The FAA define the terms "functions," "other characteristics," and "operating procedures" clearly in order to determine when and what modifications to the FSD are "warranted".

Re: Proposed paragraph (b)

Comment: This paragraph states that the FAA can issue a FSD Directive that would require the training equipment to be modified regardless of "original qualification standards". Here again the FAA could "direct" the update and possibly the "upgrade" of a simulator to the latest qualification standard.

Recommendation: That the FAA clearly define the circumstances that would produce a FSD Directive and what recourse the Training Center has when a FSD Directive is issued. Reword paragraph (b) to clarify the intent of what parameter or parameters would have to be modified in the circumstances outlined in the paragraph.

Reword the requirement for (sponsors) to modify FSDs so as to allow them to modify them on a schedule that reflects true needs of the aircraft fleet.

Proposed paragraph (b) states: "…regardless of the original qualification standards applicable to any specific FSD." We agree in concept, if it applies to a specific parameter directly related to a specific safety issue.

Re: proposed §60.23(c)

Comment: Primarily, the issue here is the distinction between the definition of a modification (authorized under proposed §60.23) and the definition of changes (that are a result of maintenance required by proposed §60.19(c)). Assuming that the allowance for changes to the software that is required for maintenance is sufficient for the

aforementioned needs of the visual or navigation systems for example, revision to the proposed §60.23(c) should not be necessary. However, there is a concern that, if environmental database revisions, etc., cannot be conducted under the authorization of proposed §60.19(c), the requirement for notification and response of the NSPM and TPAA will preclude FSDs from receiving timely visual and other system updates.

Recommendation: That the FAA allow exceptions for modifying FSD visual and other systems software without direct NSPM and TPAA notification and response, or further clarify "other circumstances as determined by the NSPM" in proposed §60.23(a)(4).

Paragraph (f) levies a notification responsibility on a sponsor. We concur with this notification responsibility if it is changed to Training Center.

Recommendation: Reword paragraph (f) as discussed.

Comment: This section continues the terms "train, evaluate, or provide flight experience," instead of the more universal, and defined, "train, test, and check."

Recommendation: The FAA use the terms "train, test, and check," as it does in the several other parts of 14 CFR. Delete "flight experience", as discussed earlier.

Re: Page 60308, § 60.25, **"Operation with missing, malfunctioning, or inoperative components".**

Comment: Paragraph (a) states that no person may use an FSD without a correctly operating component. Paragraphs (b) and (c) proceed to tell a person under what conditions they may do exactly that. To make sense, paragraph (a) must state "Except as provided in paragraphs..." if that is the FAA's intent.

With this change, this proposed section is reasonable, albeit redundant with § 142.59, except for the contradiction with Appendix H of Part 121, which FSI has already stated absolutely must be deleted if the FAA intends to proceed with Part 60.

Proposed paragraph (b) requires that each missing, malfunctioning, or inoperative component must be repaired or replaced within 7 days. We believe that this should be changed to 14 days.

Recommendation: Reword paragraph (a) as discussed above. Delete the contradictory Appendix H of Part 121.

Reword paragraph (b) to allow continued operation of an FSD with missing, malfunctioning, or inoperative components for a period of up to 21 days.

Re: Page 60308, § 60.27, **"Automatic Loss of Qualification and Procedures for Restoration of Qualification",** paragraph (a)(4)

Comment: The "e.g. for repair or modification" statement requires clarification. If the pilot's seat is removed to work on the toe brakes it seems the FSD will need to be re-qualified. Considerable disassembly is sometimes required to perform maintenance on a FSD. The disassembly, maintenance task completion, and re-assembly may require the FSD to be out of service for some number of hours or days.

Recommendation: The FAA clearly define the terms "repair" and "modification" so the danger of "automatic loss of qualification and the procedures for restoration of qualification are understood by all parties and misunderstandings that may create devastating training loss will not occur. State what is allowed or prohibited, not just one example, which seems to not be a good one.

Re: Page 60308, § 60.29, **"Other Losses of Qualification and Procedures for Restoration of Qualification",** Proposed paragraph (c)

Comment: The TCPM or POI is the FAA Approval Authority for the use of a FSD in an Approved Training Program. The NSPM should not be allowed to suspend the use of a FSD in an Approved Training Program without agreement from the appropriate TCPM or POI. Also, what recourse does the "sponsor" (Certificate Holder/ FSD owner/operator) have in an "emergency" situation? There should be complete understanding on the part of the TCPM/ POI as well as the Training Center or Certificate Holder or FSD owner/operator as to the nature of the offending situation prior to declaring an "emergency" and disallowing training in a FSD.

Recommendation: Reword Section 60.29 in the Preamble and the Rule to indicate the NSPM will notify the TCPM/POI and the Training Center or FSD owner/operator of a perceived "emergency" situation and coordinate a course of action to be taken.

Re: Page 60308, § 60.31 **"Record keeping and Reporting"**, proposed paragraphs (a)(2) and (5).

Comment: This places stricter and much more costly requirements on documenting software and hardware changes made to the simulator after the initial qualification. Would this include software changes to correct day to day simulator and aircraft systems write-ups and real world updates such as radio and airport data, IOS updates, etc? Would this require complete copies of each software/hardware iteration, software listings and hardware changes or a log that lists the changes? The NSPM appears to have no concept of the magnitude of this requirement.

Recommendation: That the NSPM track changes to the FSD via the modification requirement in proposed § 60.23(e) and limit the area of concern to FSD changes that impact the MQTG, Ground Handling Qualities and Performance and In-Flight Handling Qualities and Performance that have a direct impact on training and safety.

Re: Page 60309, § 60.31 **"Record keeping and Reporting"**, proposed paragraph (d).

Comments: With the FSD record keeping in place today including the discrepancy log, the quarterly inspections, and modification notification and approval; the TCPM and POI training program approval and surveillance as well as the new proposed QA Program, and NSPM Audits, what is the purpose of this report?

Recommendation: The FAA eliminate this zero value and redundant requirement.

Re: Page 60309, § 60.33, **"Applications, logbooks, reports, and records: Fraud, falsification, or incorrect statements",** paragraph (3)(c)

Comment: This paragraph introduces a new term and step, perhaps inadvertently, in the FSD qualification and approval process. To date, and in this proposed part, the FAA has described and required Evaluation, Qualification, and Approval. This paragraph states: "…withdrawal of authorization for use…." If "authorization for use" is to be a new step, the FAA must justify it and explain it; if it is not a new step, the FAA must use the correct word from its established list of requirements.

The title of this section includes "incorrect statement," which could mean an accidentally incorrect statement. This is not reasonable. A person could accidentally make an incorrect statement based on incorrect information or a misunderstanding. It is unlikely that the FAA intends to penalize a person for such an inadvertent statement.

The subject matter of this proposed section is covered in § 142.11(e)(3). There is no benefit to repeating it in this proposal. Given that it is redundant, and the errors in the proposal, the FAA should delete this proposed section.

Recommendation: Delete the proposed section.

Re: Page 60309, § 60.35, **"Specific simulator compliance requirements",** proposed paragraph (a) **"18 months after the effective date of the final rule for proposed Part 60…the flight simulator being evaluated for initial or upgrade qualification must conform to the aircraft being simulated, and must simulate the operation of all equipment or devices intended to simulate aircraft appliances installed and operating on the aircraft."**

Comment: This seems to say that after 18 months (of proposed Part 60 being in effect) all simulators must simulate everything in the aircraft they represent. Would this mean that a Level B simulator must have color weather radar simulated if the aircraft is outfitted with color weather radar, etc.?

The QPS requirements for FTD levels 1, 2, 3, 4, 5, and 6 as well as for Levels A, B, and C requirements do not include simulating the operation of all equipment and appliances installed on the *airplane* (aircraft) being simulated. FTDs could fit the definition of a "simulator" and therefore would not be compliant. Use of the word "simulator" is too ambiguous in this context.

Recommendation: The FAA delete the all encompassing term “all equipment or devices” and clarify the intent of this section to include the equipment simulation requirements for each level of “flight simulator” as well as specifically refer to FSD levels A-D and clarify the definition of a “flight simulator” to refer to FSD levels A-D.

QPS

Re: Page 60310, "**Introduction**", Paragraph b. (2), **"…beginning with the heading "Begin Rule Language" and ending with the heading "End Rule Language" is a direct quote or is paraphrased from proposed Part 60…"**

Comment: This is misleading and confusing.

Recommendation: The rule language should not be paraphrased or used in any way that might be misleading or not completely accurate.

Re: Page 60310, "**Introduction**", Paragraph b. (3) states: **"…the heading "Begin QPS Requirements" and ending with the heading "End QPS Requirements" is also regulatory but is found only in this appendix."**

Comment: This is also misleading and very easily overlooked.

Recommendation: The QPS should contain only technical requirements for FSD evaluation and approval. All textual regulatory material should be placed within the rule. The QPS should contain only regulatory technical requirements within tables. Where possible, the QPS needs to allow the training providers to create the necessary program to satisfy the requirements of the separate training rules. Users need program requirements (outcomes or objectives), not details of how to achieve those outcomes or objectives.

Re: Page 60310, "**Introductio**n", immediately following paragraph b. (5)(b), "Important Note", states: **"While this appendix contains quotes and paraphrasing directly from the rule, the reader is cautioned not to rely solely on this appendix for regulatory requirements…."**

Comment: This concept is in contradiction with "Introduction" paragraph 3.

Re: Page 60310, "**Introduction**", immediately following paragraph b. (5)(b), "Important Note", Paragraph (d) states: **" The NSPM encourages the use of electronic media."**

Comment: Since the NSPM is concerned with conserving resources; we believe that it should apply the same conserving measures with regard to NSPM engineering personnel for on-site initial evaluations. At this time initial evaluations are not conducted in a timely manner by the NSPM due to the limited availability of the NSPM engineering staff. With the communication capability and electronic media available today there is no reason why an NSPM engineer needs to be on-site during an initial evaluation. Any question that might arise during an evaluation can easily be discussed and data transferred to the NSPM engineer's desk from anywhere in the world for the purpose of asking questions or acquiring answers or judgments. The reduction in engineer travel would truly be a cost savings to the FAA and taxpayers and allow the engineers more time to review QTGs, which would in turn allow much better response to initial

evaluation requests. After all, one of the requirements of this NPRM is that all QTGs on all existing and new FSDs will be electronic.

The same electronic technology could be used to maintain constant and immediate interface with Designated Simulation Evaluators (DSE) for recurrent evaluation purposes.

Recommendation: That the FAA:

Delete all textual regulatory requirements from the QPS, and move any surviving proposed regulatory text to the actual rule section. All text in the QPS should be advisory or informational only. All detailed lists or directives contained in the text of the QPS should be either deleted or be maintained as advisory or informative material but not moved to the applicable proposed rule section.

Apply methods described in "Important Note" paragraph (d) to conserve NSPM resources for NSPM engineering QTG review and improve NSPM response to essential evaluation tasks. Provide for the use of Designated Simulation Evaluators for recurrent evaluation purposes.

Re: Page 60311, **"Begin Information**" from page 60310, Paragraph c. states: **"…The requirements in this appendix match the ICAO requirements…"**

Comment: There are several areas where this appendix does not "match" the ICAO document referenced in this "Begin Information" section. The most glaring example of the areas of "mismatch" is the motion system requirement in this appendix A and appendix C. The referenced ICAO document, "Manual of Criteria for the Qualification of Flight Simulators", 1st Ed. 1994, is being replaced by the newest version developed by international consensus, which included the FAA, during several working group meetings held in Amsterdam in March 2001. The requirements in this appendix "match" neither of these ICAO documents.

Recommendation: That the FAA change this appendix A and appendix C to "match" the latest version of the ICAO document, "Manual of Criteria for the Qualification of Flight Simulators" developed in Amsterdam, March 2001.

Re: Page 60311**, 5. "Quality Assurance Program, Begin Rule Language (§ 60.5)"**, Paragraphs a., b., c., and d. End Rule Language.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.5 in the preamble and proposed rule sections.

Recommendation: That the FAA delete "Begin Rule Language", paragraphs a., b., c., and d. and "End Rule Language" from the QPS.

Re: Page 60311, 5. **"Quality Assurance Program, Begin QPS Requirements"**, paragraph (e).

Comment: The beginning paragraph contains specific and potentially erroneous titles and insufficient guidance. The Quality Assurance Program is described in the preamble to § 60.5 and proposed § 60.5. The management representative requirement in this "Begin QPS Requirements" section in redundant and confusing.

Recommendation: That the FAA delete Begin QPS Requirements paragraph e.

Re: Page 60311, 5. **"Quality Assurance Program, Begin QPS Requirements"**, paragraph (f)

Comment: The paragraph begins to set forth specific requirements, which as previously stated are unnecessary. Paragraphs f (1) through f (21) are redundant and too detailed. Paragraphs f (1) through f (21) could be retained as information only.

Recommendation: That the FAA delete paragraphs f (1) through f (21) or consider replacing "Begin QPS Requirements" with "Begin Information", and delete "End QPS Requirements" and "Begin Information" before paragraph g (1) on page 60312.

Re: Page 60312, 6**. "Sponsor Qualification Requirements, Begin Rule Language (§ 60.7**)", paragraphs a., b., and c.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.7 in the preamble discussion of that section and the proposed rule text.

Recommendation: That the FAA delete 6. Sponsor Qualification Requirements, Begin Rule Language (§ 60.7), paragraphs a., b., and c and End Rule Language from the QPS.

Re: Page 60312, 7. **"Additional Responsibilities of the Sponsor, Begin Rule Language (§ 60.9**)", paragraphs a. and b.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.9 in the preamble and the proposed rule text.

Recommendation: That the FAA delete 7. Additional Responsibilities of the Sponsor, Begin Rule language (§ 60.9), paragraphs a. and b and End Rule Language from the QPS.

Re: Page 60312, 8**. "Simulator Use, Begin Rule Language (§ 60.11)"**, entire section.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.11 in the preamble and the proposed rule text.

Recommendation: That the FAA delete: 8. Simulator Use, Begin Rule Language (§ 60.11), entire section and End Rule language from the QPS.

Re: Page 60313, "**Begin QPS Requirements"**, paragraph (e) states:…**" Only those simulators used by a certificate holder…."**

Comment: All regulatory text should be contained within the applicable proposed rule section.

Recommendation: That the FAA move this language to the rule section text.

Re: Page 60313, 9. **"Simulator Objective Data Requirements, Begin Rule Language (§ 60.13)",** paragraphs a. through f.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.13 in the preamble and the proposed rule text.

Recommendation: That the FAA delete 9. Simulator Objective Data requirements, Begin Rule Language (§ 60.13), paragraphs a. through f and End Rule Language from the QPS.

Re: Page 60313, "**Begin QPS Requirements"**, paragraph 9(g) through 9(j)

Comment: Material is germane, but should be advisory material only.

Recommendation: That the FAA change header immediately preceding paragraph 9(g) to "Begin information" and remove the "End QPS Requirements" which follows paragraph 9(i) and remove the "Begin Information" header which precedes paragraph 9(j), so that the entire material from paragraph 9(g) through 9(j) is all advisory material.

Re: Page 60314, 10. **"Special Equipment and Personnel Requirements for Qualification of the Simulator, Begin Rule Language (§ 60.14)"**, paragraph a.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.14 in the preamble and the proposed rule text.

Recommendation: That the FAA delete Begin Rule Language (§ 60.14) paragraph a and End Rule Language from the QPS.

Re: Page 60314, "**Begin Information"**, paragraph 10(c)

Comment: As discussed earlier, the 24-hour period is too restrictive and impractical.

Recommendation: That the FAA change the 24-hour period to ten calendar days, as recommended comments to the proposed rule text.

Re: Page 60314, 11. **"Initial (and Upgrade) Qualification Requirements, Begin Rule Language (§ 60.15)"**, paragraph a. through h.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.15 in the preamble and the proposed rule text.

Recommendation: That the FAA delete Begin Rule Language (§ 60.15) paragraphs a. through h. and End Rule language from the QPS.

Re: Page 60314, **"Begin QPS Requirements",** paragraph 11(i)

Comment: This paragraph refers to paragraph 11(b)(4); the correct reference should be 11(b)(5). The rule language is adequate for this subject. All regulatory text should be contained within the applicable proposed rule section. The text contained within Begin QPS Requirements paragraphs 11(I). through 11(o). Should be advisory only.

Recommendation: That the FAA:

Renumber and refer to paragraphs correctly.

Delete "Begin QPS Requirements" preceding paragraph 11(i) and replace with "Begin Information;" Remove the "Begin Information" immediately preceding paragraph 11(p) on page 60315.

Re: Page 60316, 12. **"Additional Qualifications for a Currently Qualified Simulator, Begin Rule Language (§60.16)"** paragraphs a. through d.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.16 in the preamble and proposed rule text.

Recommendation: That the FAA delete 12. "Additional Qualifications for a Currently Qualified Simulator, Begin Rule Language (§ 60.16)", paragraphs a. through d. and "End Rule Language" from the QPS.

Re: Page 60316, 13. **"Previously Qualified Simulators, Begin Rule Language (§ 60.17)"**, paragraphs a. through e.

Comment: All regulatory text should be contained within the applicable proposed rule. Refer to comments and recommendations concerning § 60.17 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Begin Rule Language (§ 60.17)", paragraphs a. through e. and "End Rule Language" from the QPS.

Re: Page 60316, 14**. "Inspection, Maintenance, and Recurrent Evaluation Requirements, Begin Rule Language (§ 60.19)"**, paragraphs a. through c.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.19 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Begin Rule Language (§ 60.19)", paragraphs a. through c. and "End Rule Language" on page 60317 from the QPS.

Re: Page 60317, "**Begin QPS Requirements"**, paragraph 14 (d)

Comment: This checklist is much too detailed and contains requirements (regulatory) that are unnecessary and unwise. For example, it requires that the person conducting the preflight inspection to turn off the main power to the FSD, which is seldom advisable. The re-powering process is frequently complicated and time consuming, which leaving the power on would preclude. A QA program, already proposed, would typically include the details of a preflight inspection.

Recommendation: That the FAA delete paragraph 14(d) from the QPS entirely.

Re: Page 60317, "**Begin Information"**, paragraph 14(e)

Comment: The 24 hour notice comment should be changed to 10 calendar days, as stated earlier.

Recommendation: That the FAA change 24 hours to 10 calendar days.

Re: Page 60317, "**Begin Information"**, paragraph 14(f)

Comment: The overall proposal is to have the Training Center conduct three of the required four recurrent evaluations per year per FSD, and have the NSPM visit for evaluations only once per year per FSD. Each evaluation requires removal of the FSD from service for four hours. Even though the NSPM would come but once per year, this paragraph indicates that it would still use the same number of hours per year per FSD as before in two visits i.e., eight hours. The total number of hours of revenue lost by proposals of this NPRM and this paragraph would increase from four evaluations (16 hours) to four evaluations, one of them eight hours long (20 hours), all in the interest

of conserving NSPM resources. The added cost to Training Centers, however, is significant.

Recommendation: That the FAA conduct its annual evaluation, as proposed, within the current time frame. Reword "Begin Information" paragraph 14(f) from 8 hours to 4 hours.

Re: Page 60317, 15. **"Logging Simulator Discrepancies, Begin Rule Language (§ 60.20)"**, and entire paragraph.

Comments: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.20 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Logging Simulator Discrepancies (§60.20)", entire paragraph and "End Rule Language" from the QPS.

Re: Page 60317, 16. **"Interim Qualification of Simulators for New Airplane Types or Models, Begin Rule Language (§60.21)"** paragraphs a. through d.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.21 in the preamble and the proposed rule text.

Recommendation: That the FAA delete 16. "Interim Qualification of Simulators for New Airplane Types or Models, Begin Rule Language" paragraphs a. through d. and "End Rule Language" from the QPS.

Re: Page 60317, 17**. "Modifications to Simulators, Begin Rule Language (§ 60.23)"** paragraphs a. through g.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.23 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Modifications to Simulators, Begin Rule Language (§ 60.23) paragraphs a. through g. and End Rule Language" from the QPS.

Re: Page 60318, "**Begin QPS Requirements"**, paragraph 17h

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.23 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "**Begin QPS Requirements"**, paragraph 17 h. and "**End QPS Requirements"** from the QPS.

Re: Page 60318, 18 **"Operations With Missing, Malfunctioning, or Inoperative Components, Begin Rule Language (§ 60.25)"** paragraphs a. through c.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.25 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Operations With Missing, Malfunctioning, or Inoperative Components, Begin Rule Language (60.25)" paragraphs a. through c. and "End Rule Language" from the QPS.

Re: Page 60318, 19. **"Automatic Loss of Qualification and Procedures for Restoration of Qualification, Begin Rule Language (§ 60.27)"** paragraphs a. through c.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.27 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Automatic Loss of Qualification and Procedures for restoration of Qualification, Begin Rule Language (§ 60.27)" paragraphs a. through c. and "End Rule Language" from the QPS.

Re: Page 60318**, 20. "Other Losses of Qualification and Procedures for Restoration of Qualification, Begin Rule Language (§ 60.29)"** paragraphs a. through c.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.29 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Other Losses of Qualification and Procedures for Restoration of Qualification, Begin Rule Language (§ 60.29)" paragraphs a. through c. and "End Rule Language" from the QPS.

Re: Page 60319, 21. **"Record keeping and Reporting, Begin Rule Language (§ 60.31)"** paragraphs a. through d.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.31 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Record keeping and Reporting, Begin Rule Language (§ 60.31)" paragraphs a. through c. and "End Rule Language" from the QPS.

Re: Page 60319, 22. **"Applications, Logbooks, Reports, and Records: Fraud, Falsification, or Incorrect Statements, Begin Rule Language (§ 60.33)"** paragraphs a. through c.

Comments: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.33 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Applications, Logbooks, Reports, and Records: Fraud, Falsification, or Incorrect Statements, Begin Rule Language (§ 60.33)" paragraph a. through c. and "End Rule Language" from the QPS.

Re: Page 60319, 23. **"Specific Simulator Requirements, Begin Rule Language (§ 60.35)"** paragraphs a. and b.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.35 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Specific Simulator Requirements, Begin Rule Language (§ 60.35)" paragraphs a. and b. and from the QPS.

Re: Page 60319, 25. **"Simulator Qualification on the Basis of a Bilateral Aviation Safety Agreement (BASA), Begin Rule Language (§ 60.37)"** paragraphs a. and b.

Comment: All regulatory text should be contained within the applicable proposed rule section. Refer to comments and recommendations concerning § 60.37 in the preamble and the proposed rule text.

Recommendation: That the FAA delete "Simulator Qualification on the Basis of a Bilateral Aviation Safety Agreement (BASA), Begin Rule Language (§ 60.37)" paragraphs a. and b. and "End Rule Language" from the QPS.

General QPS comments: Comments about Appendix A and its attachment apply in general to other Appendices and attachments. However, the terms helicopter or rotorcraft should be used, not airplane, as appears throughout Appendix C and in other places.

Re: Page 60319, Attachment 1 to Appendix A to Part 60 – **"General Simulator Requirements, 1 General, Begin QPS Requirements"** paragraph a.

Comment: All regulatory text should be contained within the applicable proposed rule section. The QPS Requirement is redundant and contains unnecessary restrictive detail. This information may be useful advisory material.

Recommendation: That the FAA either remove paragraph a. from the QPS or replace the "Begin QPS Requirements" heading with "Begin Information" and remove the "End QPS Requirement" and the "Begin Information" heading above b (1).

Re: Page 60319, Attachment 1 to Appendix A to Part 60, **"General Simulator Requirements, 1. General"**, paragraph a. (2)(a)

Comment: It has been realized in recent cases that airports implement temporary changes in the airport configuration that are difficult to implement in a timely manner. In particular for one recent case, accurate information was difficult to obtain and implement in a timely manner due to the dynamic nature of the construction process.

Recommendation: That the FAA change this paragraph to read "...requires the visual scene to be modified when the airport is permanently modified..."as information only.

Re: Page 60319, Attachment 1 to Appendix A to Part 60**, "General Simulator requirements, 1 General",** paragraph a. (2)(a)

Comment: As the capability to represent all of the actual airport features does not exist, the comparison can only be left to a subjective evaluation. Also, since the comparison is made to the actual airport without definition of the accepted data sources, ambiguities and misinterpretation will result.

Environmental database content (i.e., "airports represented in visual scenes") are currently subjectively evaluated resulting in inconsistencies in the accepted requirements. A recent draft for "Minimum Requirements for Flight Simulator Airport Visual Scene Content", published by the NSPM, has been a step in providing direction for more objective evaluations. However, it is still a working NSPM document and should be brought to finalization by including industry input. The FAA should determine whether these requirements should be included in Part 60, referenced, or become an Advisory Circular, with provisions and proper references made in Part 60, as necessary.

Recommendation: That the FAA clarify the requirement for comparing accuracy requirements with the visual representation and scene content with the actual airport. Cite acceptable data sources along with guidelines for scene requirements as information only.

Re: Page 60319, Attachment 1 to Appendix A to Part 60, **"General Simulator Requirements, 1. General",** paragraph a. (2)(a)

Comment: Determination for all of the applicable requirements for a specific level of simulators has always been difficult due to the multiple cross references that must be made between the Advisory Circulars, regulations, etc.; as one purpose of Part 60 is to consolidate and clarify FSD requirements, it would be advantageous to adhere to a logical placement of any specific requirements to the table that exists for that purpose. As a minimum requirement is being made with regards to the visual scene, logically it fits within the table of minimum simulator requirements.

Note that the above comments with regards to the visual scene requirements for operational airports (or landing areas) also apply to proposed Attachment 1 to Appendix C to Part 60, "General Simulator Requirements, 1. General", paragraph a. (2)(a) (helicopter simulator QPS requirements).

Recommendation: That the FAA the requirements for airports in visual scenes should be moved to an applicable section in the Table of Minimum Simulator Requirements.

Re: Page 60320, Appendix A, Attachment 1, **"Table of Minimum Simulator Requirements 3. Programming",** paragraph b.

Comment: The required SOC is too vague and would be very awkward to write. This requirement will be outdated before the proposed rule is published.

Recommendation: That the FAA delete this requirement from the QPS.

Re: Page, 60320, Appendix A, Attachment 1, **"Table of Minimum Simulator Requirements 3. Programming",** paragraph c –

Comment: The requirement to update simulator hardware and programming within 6 months of any airplane modifications or appropriate data releases is too vague. Not all airplane modifications affect the counterpart simulator. Which data releases are "appropriate"? Clarification is needed as to the intent and scope of this requirement. This type of requirement is misplaced and is covered in the rule.

Recommendation: That the FAA remove this language from the QPS.

Re: Page 60321, Appendix A, Attachment 1, **"Table of Minimum Simulator Requirements, 3. Programming**," paragraph e. (1) Ground effect.

Comment: Level B data requirements and QTG requirements have never included ground effect.

Recommendation: That the FAA delete ground effect requirements from Level B.

Re: Page 60322, Appendix A, Attachment 1, **"Table of Minimum Simulator Requirements, 3. Programming",** paragraph i (1)

Comment: As the response times of various FSD systems are inherent to the complex integration of all of these systems, improving the response time may not be possible. In the case of additional qualifications for a currently qualified FSD under proposed §60.16, confusion and discretion may be avoided by using the previous criteria. The previous criteria have proven to be adequate in meeting the current training needs of Level A and B FSDs.

Recommendation: Include a response time of 300 milliseconds in the "Table of Minimum Simulator Requirements, 3. Programming", paragraph i. QPS requirements for Level B relative responses of the motion system, visual system, and cockpit instruments, as previously required.

Re: Page. 60322, Appendix A, Attachment 1, **"Table of Minimum Simulator Requirements, 3. Programming",** paragraph i. (2) –

Comment: The addition of latency demonstrations to transport delay testing is not consistent with the latest (draft) ICAO document jointly developed by the FAA, JAA and industry in Amsterdam. The FAA has stated in this proposed rule that one of the foremost reasons for the development of Part 60 is to harmonize with the latest ICAO document. The Amsterdam working groups worked in good faith and found agreement on the requirements in the latest version of the ICAO Document "Manual of Criteria for the Qualification of Flight Simulators. It was understood that the NSPM participants in Amsterdam were in complete agreement with the outcome of the discussions and decisions.

Transport Delay has been an acceptable stand-alone alternative method to satisfy the "relative response" requirement for many years.

Recommendation: That the FAA delete the addition of latency demonstrations.

Re: Page 60323, Appendix A, Attachment 1, **"Table of Minimum Simulator Requirements, 3. Programming",** paragraph n.

Comment: A SOC is required to describe a methodology to control hardware and software that includes diagnostics and printouts. This requires a great deal of explanation that would seem to result in a dictated design to accomplish this requirement. The FAA should not describe simulator system specifications in the QPS.

Recommendation: That the FAA delete this requirement from the QPS.

Re: Page 60325, Attachment 1 to Appendix A to Part 60, 7. **"Visual System",** paragraph b.

Comment: In the Section-by-Section Discussion of proposed §60.35, a statement was made that "the direct projected system provided an agreeable presentation to only one pilot at a time". With a direct projected system, it can be argued that an agreeable presentation may be only available to one pilot, however, disallowing the use of direct projection systems in Level A and B simulators can be construed as a short-sighted outlook into the use of all FSDs. It can be shown that many aircraft being simulated by FSDs today are flown by a single pilot, and it can also be theorized that future single pilot aircraft (i.e., next generation personal type jet aircraft, advanced aircraft with automated systems, etc.) will be available whose training requirements can be met by a direct projected system within the stated limitations.

Recommendation: That the Table of Minimum Simulator Requirements, 7. Visual System, paragraph b. QPS requirements for Level A and B not restrict the visual system to a collimated type system and allow for use of a direct projected system (or other technology yet to be developed).

Re: Page 60328, Attachment 1 to Appendix A to Part 60, **"QPS Requirement 7".**

Comment: The specifications for surface resolution, lightpoint size, and lightpoint contrast ratio specified in proposed paragraphs p., q., and r. refer to daylight visual scene requirements. As stated in proposed paragraph s., a daylight visual scene is not required for Level C and therefore the daylight specifications should not apply unless a daylight capable system is installed.

Recommendation: That the FAA specify that Visual System, paragraphs p., q., and r. do not apply to Level C unless a daylight capable visual system is installed (similar to paragraph g. (4) where the runway markings resolution for day scenes is specified, in addition to the night time specification).

Re: Page 60328, Attachment 1 to Appendix A to Part 60, **"QPS Requirement 7"**.

Comment: It can be shown through current applications that systems operating at less than 6 ft-L and at Level C or below are practical for many training scenarios. It is assumed that less training credits are allowed for Level C or below, as compared to Level D, further justifying the lack of need for the brightness requirement yet allowing for the training scenario flexibility of some daylight operations.

It is also noted the daylight visual system definition as stated is somewhat circular, in that if it does not meet the definition in the "Information notes" section, the system is not a "daylight visual system" and, therefore, does not need to meet the requirements stated in "Additional details".

Recommendation: That the FAA reword "Visual System", paragraph s., "Additional details" and "Information notes", to remove the requirement of all daylight visual systems to meet the same specifications, regardless of Level. In particular, remove of the 6 ft-L requirement.

Re: Page 60330, Attachment 2 to Appendix A to Part 60—**"Simulator Objective Tests. 1. General**, **Begin QPS Requirements"** paragraph a.

Comment: All regulatory text should be contained within the applicable proposed rule section. Paragraph a. should be advisory and information only.

Recommendation: That the FAA delete the heading "Begin QPS Requirements" and replace with "Begin Information" for paragraph a. and delete "End QPS Requirements" and "Begin Information" after b. Discussion.

Re: Page 60331, Appendix A, Attachment 2**, "Begin QPS Requirements, 1"**, paragraph. a. (10)

Comment: The meaning of the last sentence is unclear. The same initial conditions as what? The thrust from which flight test data? Clarification is needed.

Recommendation: That the FAA clarify this statement.

Re: Page 60338, Appendix A, Attachment 2, **"Table of Objective Tests"**, paragraph 3.b. (2) Roll Control and 3b. (3) Yaw Control.

Comment: The requirement to show control displacement in both directions is not consistent with the latest version (Amsterdam draft) ICAO document.

Recommendation: That the FAA change the first sentence under Test Details to read, "Data must show normal control displacement."

Re: Page 60338, Appendix A, Attachment 2, **"Table of Objective Tests, 3"**, paragraph c. (1) Power Change Dynamics.

Recommendation: That the FAA specify the flight condition as "Approach to go-around" to be consistent with the latest version (Amsterdam draft) of the ICAO document. This will also ensure a "thrust increase" test instead of a "thrust decrease" test.

Re: Page 60339, Appendix A, Attachment 2, **"Table of Objective Tests, 3"**, paragraph c. (3) Spoiler/Speedbrake Change Dynamics.

Comment: New version (Amsterdam draft) ICAO document requires results for both extension and retraction.

Recommendation: That the FAA conform to the Amsterdam ICAO document.

Re: Page 60339, Appendix A, Attachment 2, **"Table of Objective Tests, 3"**.paragraph c. (5) Alternate Landing Gear and Alternate Flap/Slat Operating Times.

Comment: New version (Amsterdam draft) ICAO document also requires testing for normal gear and flap/slat operating times.

Recommendation: That the FAA conform to the Amsterdam ICAO document.

Re: Page 60342, Appendix A, Attachment 2, **"Table of Objective Tests 3"**, paragraph e. (3) Crosswind Landing and 3e. (4) One Engine Inoperative Landing.

Comment: See "Test details". Reference 1 specifies, "50% decrease in main landing gear touchdown speed" as compared with "50% of Vref speed" in the Proposal.

Recommendation: That the FAA use the Amsterdam ICAO document language to maintain consistency and prevent confusion.

Re: Page 60343, Appendix A, Attachment 2, **"Table of Objective Tests, 3"**, paragraph e. (6) Go Around.

Comment: The word "Additionally" in the first sentence in "Test details" seems to imply that an all-engine autopilot-off go-around is required in addition to those conditions specifically listed. This would not be consistent with the Amsterdam ICAO document which requires only the cases specifically listed.

Recommendation: That the FAA delete the word "Additionally" and conform to the ICAO document.

Re: Page. 60344, Appendix A, Attachement 2, 3. **« Motion System"**

Comment: This section of the Proposal is totally inconsistent with the latest version of the ICAO (Amsterdam draft) Document, "Manual of Criteria for the Qualification of Flight Simulators". It is also inconsistent with the corresponding section in Appendix C. In FlightSafety's operating experience of over 300 high-fidelity simulators worldwide, there has been no proven objective connection between motion system envelope (excursion, acceleration, and velocity) and motion system performance as perceived by the pilot. Motion system performance is at least as much a function of the software as it is the hardware. Therefore, testing of motion system hardware capability does not prove overall motion system performance for the intended application. It has already been established that such testing is in fact potentially damaging to the simulator.

Recommendation: (Strong) That the FAA replace this section with the requirements contained in the latest version of the ICAO (Amsterdam draft) Document, "Manual of Criteria for the Qualification of Flight Simulators.

Re: Page 60355, Attachment 3 to Appendix A to Part 60—"**Simulator Subjective Tests, 2. List of Operations Tasks, Begin QPS Requirements".**

Comment: All regulatory text should be contained within the applicable proposed rule section. The entire section should be information only.

Recommendation: That the FAA delete the heading "End Information" in front of 2. "List of Operations Tasks" and "Begin QPS Requirements" under 2. "List of Operations Tasks" on page 60355 and replace "End QPS Requirements" on page 60356 with "End Information".

Re: Page 60357, Attachment 4 to Appendix A to Part 60—**"Definitions and Abbreviations, 1. Definitions, Begin Regulatory Language (14 CFR Part 1 and § 60.3)**".

Comment: All regulatory text should be contained in the applicable proposed rule section. This information is covered in proposed§ 60.3. There is no need to repeat it here.

Recommendation: That the FAA delete the entire section between "Begin Regulatory Language (14 CFR Part 1 and § 60.3)" and "End Regulatory Language (14 CFR Part 1 and § 60.3)" on page 60357 of the QPS.

Re: Page 60357, Attachment 4 to Appendix A to Part 60—**"Definitions and Abbreviations, Begin QPS Requirements".**

Comment: All regulatory text should be contained within the applicable proposed rule section. This is useful information but should be advisory material only.

Recommendation: That the FAA change the heading from "Begin QPS Requirements" to "Begin Information" and delete "End QPS Requirements" on page 60358.

Re: Page 60358, 2. **"Abbreviations, Begin QPS Requirements".**

Comment: All regulatory text should be contained within the applicable proposed rule section. This is useful information but should be advisory material only.

Recommendation: That the FAA delete: "**Begin QPS Requirements"** after 2. "Abbreviations" and replace "**End QPS Requirements"** on page 60359 with "**End Information"**.

Re: Page 60360, Attachment 5 to Appendix A to Part 60**—"Figure 1—Sample Letter of Request".**

Comment: This is information only. However, it should be made clear that the pilots' names and signatures are not a regulatory requirement to request an FSD evaluation.

Recommendation: That the FAA remove the lines in the letter that refer to pilots' names.

Re: Page 60370, Attachment 6 to Appendix A to Part 60—**"Figure 6—Sample Request for Initial, Upgrade, or Reinstatement Evaluation Date, INFORMATION".**

Comment: The second paragraph in the sample letter promises a QTG will be submitted no less than 45 days prior to the requested evaluation date. This is unrealistic and impractical in most cases when modifying, upgrading or relocating an existing FSD. The lead-time required by the NSPM to review and comment on a QTG is cumbersome and costly to the industry and creates safety issues due to the extended time the FSD is out of service. Proper use of NSPM resources could reduce the required lead-time for QTG submittal and NSPM response time to evaluation requests.

Recommendation: That the FAA utilize the electronic communication technology that exists today as discussed in the "Important Note" on page 60310 and subsequent comments and recommendations to more efficiently direct NSPM resources.

Re: Page 60371, Attachment 6 to Appendix A to Part 60—**"Simulator Qualification Requirements for Winds hear Training Program Use, 1", Applicability, 2. "Statement Of Compliance" 3. "Models", 4. "Demonstrations", 5. "Recording Parameters", 6. "Equipment Installation and Operation", 7. "Qualification Test Guide",** (All Begin and End QPS Requirements pertaining to Windshear on pages 60371 and 60372).

Comment: All regulatory text should be contained in the applicable proposed rule section. Any QTG requirements should be contained within the Tables of the QPS. All non-regulatory text should be contained within the "Begin Information" sections of the QPS.

Recommendation: That the FAA rework the Windshear requirements in Attachment 6 to Appendix A to Part 60 to reside in text form in the applicable proposed rule section or in the QTG Tables.

Re: Page 60372, Attachment 7 to Appendix A to Part 60—"**Record of FSD Directives, Begin QPS Requirements".**

Comment: All regulatory text should be contained in the applicable proposed rule section.

Recommendation: That the FAA relocate the regulatory requirements in Attachment 7 to Appendix A to Part 60—"Record of FSD Directives" to the applicable proposed rule section.

Re: Page, 60452, Appendix C, Attachment 2, **"Table of Objective Tests, 2.h. (2) Autorotation Performance and Trimmed Flight Control Positions"**.

Comment: The test tolerances in AC 120-63 include Vertical Velocity +/-100 fpm or 10%, and Rotor Speed +/-1.5%.

Recommendation: Add these tolerances to make the test more meaningful.

Re: Page. 60456, Appendix C, Attachment 2, 4. **"Motion System".**

Comment: As with Appendix A, this section is inconsistent with the ICAO Amsterdam draft document.

Recommendation: That (strongly) the FAA harmonize the requirements of this section with the corresponding section in ICAO Amsterdam draft document.

Re: Page 60444, Attachment 1 to Appendix C to Part 60, **"QPS requirement 7"**.

Comment: While there are various implementations of chin window simulations, it can be shown in most cases that compromises are being realized due to the limitations in current technology. Therefore, in typical practice, training tasks that require the use of the chin windows are not being conducted in the simulator. Due to the critical nature of these training tasks, they are required to be accomplished in the helicopter.

Recommendation: Visual System, paragraph d., it is agreed that there should not be a requirement for operational chin windows.

Re: Page 60444, Attachment 1 to Appendix C to Part 60, **"QPS requirement 7".**

Comment: The specifications for surface resolution, lightpoint size, and lightpoint contrast ratio specified in proposed paragraphs r., s., and t. refer to daylight visual scene requirements. As stated in proposed paragraph v., a daylight visual scene is not required for Level C and therefore the daylight specifications should not apply unless a daylight capable system is installed.

Recommendation: Visual System, paragraphs r., s., and t. to not apply to Level C unless a daylight capable visual system is installed (similar to paragraph k. (4) where the runway markings resolution for day scenes is specified, in addition to the night time specification).

Re: Page 60444, Attachment 1 to Appendix C to Part 60, **"QPS requirement 7".**

Comment: It can be shown through current applications that systems operating at less than 6 ft-L and at Level C or below are practical for many training scenarios. It is assumed that fewer training and testing tasks are allowed for Level C or below, as compared to Level D, further justifying the lack of need for the brightness requirement yet allowing for the training scenario flexibility of some daylight operations.

It is also noted the daylight visual system definition as stated is somewhat circular, in that if it does not meet the definition in the "Information notes" section, the system is not a "daylight visual system" and, therefore, does not need to meet the requirements stated in "Additional details".

Recommendation: Reword Visual System, paragraph v., Additional details and Information notes, to remove the requirement of all daylight visual systems to meet the same specifications, regardless of Level. In particular, the FAA should remove the 6 ft-L requirement.

Typographical Errors

Re: Page 60305, § 60.15(g)(3) – Sentence should read "configuration of the aircraft type or set of aircraft being simulated".

Re: Page 60313, Appendix A, 9.g - Item (31) should be item (3) in the list.

Re: Page 60314, Appendix A, 11.i and 11.k - Should read, "The QTG described in paragraph 11.b. (5) of this appendix".

Re: Page 60314, Appendix A, 11.k. (2) - Should read "See Attachment 5, Figure 5, for a sample Recurrent Evaluation…"

Re: Page 60315, Appendix A, 11.r - Should read "See Attachment 5, Figure 6, Sample Request for Initial…"